DOCUMENT RESUME

ED 138 503 SO 009 941

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TITLE Here Comes the Future.
INSTITUTION Nebraska State Dept. of Education, Lincoln. Div. of Instructional Services.
PUB DATE 76
NOTE 75p.

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS Behavior Patterns; Communications; Concept Teaching; Educational Television; Elementary Secondary Education; Environmental Education; Environmental Influences; *Futures (of Society); *Global Approach; Higher Education; Humanities Instruction; *Interdisciplinary Approach; Lesson Plans; Social Change; Social Studies; Student Attitudes; *Teaching Guides; *Television Curriculum

ABSTRACT

This teacher's guide introduces students to problems and potentials of the future in an effort to prepare them for life in the 21st century. Based on an interdisciplinary approach, the lesson plans within four major units represent five futuristic trends and assumptions: (1) the shift of emphasis from subject matter to conceptual frameworks; (2) increasing attention to the cultivation of human potential; (3) the focus on durable, flexible, and transferable education; (4) the commitment to experiential learning; and (5) the increasing influence of the visual on communication. The first unit examines personal and social behavior through presentation of lessons on genetic engineering, biofeedback, meditation, brain research, violence, and mental illness. The second unit explores types of communication, including media, music, religion, group therapy, art and design. Future habitats and life styles are described in the third unit, followed by lessons on natural resources, ecology, population, war, and space in unit four. The units suggest a variety of activities, including: interviewing experts, research and evaluation projects, class discussion, multimedia presentations, and survey research. Seven major areas are presented in each lesson format. These include cognitive organizers to involve students in concepts, terminology, key questions, objectives, learning activities, and resources to accompany television films, and recommendations for citizen action. A student attitude survey, for use in both pretest and posttest evaluation, is included. (Author/DB)

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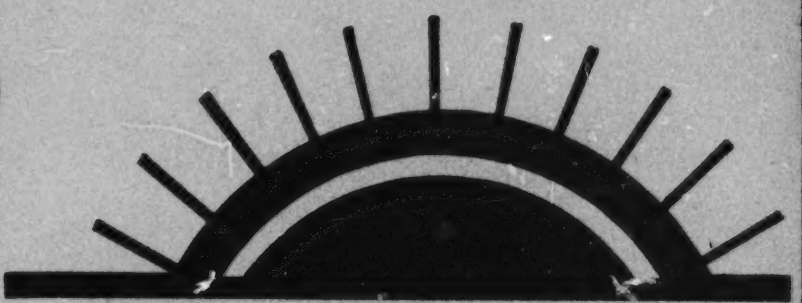
HERE COMES THE FUTURE



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Issued by

Division of Instructional Services

M. Anne Campbell
Commissioner of Education
Nebraska Department of Education
233 South 10th Street
Lincoln, Nebraska 68508

1976

Document Associates, Inc. of Canada, producer and distributor of the 26 films in HERE COMES THE FUTURE, provided the information for the content summaries used in this guide.

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Future Studies

Teachers from kindergarten to graduate school now are recognizing the importance of introducing a future aspect to education. Courses dealing with problems and potentials of the future are being taught at a growing number of schools and colleges and teachers are discovering that students respond enthusiastically to classes that are "futurized."

The year 2000 may seem a long way off to many people, but today's students will be the decision makers then. It makes good sense to help them think a bit today about what life may be like in the 21st Century.

The rapid pace of change means that the world of the future is going to be very different from today's world. Young people seem to recognize the fact of change, and become excited when the curriculum explicitly focuses on the world of tomorrow rather than on today -- which will be gone by the time the youngsters emerge from school.

Future-oriented courses presently being taught in schools and colleges throughout North America vary greatly in content and approach. One may be a unit in an English course and concentrate on science fiction descriptions of future worlds; another may be a semester in a political science sequence where students speculate about ways of setting up more effective governments. Science teachers are, of course, interested in acquainting students with potential developments in their particular fields. Business and engineering schools are giving close attention to methodologies such as technological forecasting and technology assessment. One common denominator of courses dealing with alternative futures seems to be that both students and teachers learn to think in new ways and get "turned on" to new ideas.

From Document Associates, Inc.

Interdisciplinary Approach

The lesson formats included in this package were formulated by an interdisciplinary team; one member works in the area of science, another in social studies, another in communication arts.

The films in this series represent various disciplines and can be used in several content areas. The lesson plans reflect this variety.

Lesson Format

Seven major areas are presented in each lesson. The teaching team recommends the sequence and illumination of all seven, although it is not necessary to include all parts.

1) The initial teaching activity is the **cognitive organizer**. These organizers are structured to involve the students in the major concepts of each film. Many of these are interchangeable with one another and are interchangeable with some of the citizen action recommendations. The students' direct input into the concept should help to motivate interest and feeling for the unit.

2) The **terminology** in the film series is often new and dependent on its context. Presentation of the terminology list prior to viewing the film will prepare the students for an encounter with often new and futuristic ideas.

3) The **key questions** are keyed directly to the film. They should be previewed before viewing the film also. Both the terminology and the key questions can be used as review for evaluating student comprehension of the films.

4) The **objectives** are minimal statements of the major concepts. They attempt to cover the total study of a single lesson, including projects and activities for further analysis. The individual instructor may want to add or delete from the objectives according to the time available for each unit.

5) The **project and activity questions** are designed to motivate and identify additional projects and activities. They provide discussion questions keyed to specifics in each film. These questions magnify the importance of the specific ideas from other major topics.

6) The **resources** identified are central and relevant to each film, but they are by no mean complete bibliographies. The resources are listed as support material for instructors and may be used as recommendations for further student investigation.

7) **Citizen action** is essential to the students taking direct action for their future roles in the world. This activity is strongly recommended.

Statement of Limitation:

Because of time limitations, because the team was working with a prepackaged product (the films), because of the interdisciplinary nature of the team and because the team agreed upon a uniform format to approach each lesson, this guide in no way represents the ultimate. It identifies for classroom teachers a possible approach for each lesson. Teachers should recognize that their own experiences, the facilities and resources available to them and the experiences of their students may dictate more appropriate teaching practices.

Dear Educator:

"Here Comes the Future" is based on a number of futuristic trends and assumptions.

These future developments in turn are not limited to education but will impact upon society as a whole as well as the global community.

Hence, they are of special interest to educators and communicators responsible for preparing students, adults and special interest groups to live and work in the 21st Century.

Here are five of the essential trends:

1 The Concept of Concepts: gradual shift from exclusive focus on subject matter to emphasis on conceptual frameworks. This in part accounts for the significant popularity and quality of the TV series on "The Ascent of Man." What is involved here is a search for new sources of coherence -- for meta-concepts -- and for redefinitions of all disciplines in their capacity to relate to each other. The trend further suggests that disciplines that engage in such reexamination and nest themselves within new comprehensive concepts will gain not lose strength, significance and substance.

2 Human Potential: increasing attention, especially given the prospects of greater life expectancy, reduced work week and earlier retirement, to the cultivation of internal resources -- to the physical, mental, emotional, sensory, relational and transactional aspects of human development. Recent surveys conducted among parents of high school and college level students show a surprisingly strong preference for such education and training to be undertaken by the schools.

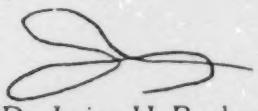
3 The Futurability of Education: increasing stress on career orientation and education without long-range support services can disastrously produce an entire generation with built-in work obsolescence. A crucial supplement is to stress the futurability of education as the educational version of the accountability of education. Here the focus is on education which is durable, flexible and transferrable. A key avenue to such futurability is that offered by creative problem-solving, especially if linked to gaming and simulation skills and techniques. A crucial sub-trend here is the increasing visability of collective problem-solving using peer cohesion -- the so-called task-force approach.

4 Experiential Learning: increasing commitment to hands-on kinds of learning experiences. But it is not always possible to learn by doing; and even when it is, some informed preparation should precede it. The emphasis here is learning by designing: discovering the principles of human design, becoming aware of the degree to which they are vulnerable to break-down, to hardening of the heart and sabatoge, building in feed-back, etc. One of the most exciting and educationally challenging ways to such learning is through designing or inventing the future, including pragmatically one's future job, leisure life style, family, etc. In effect, individuals can be invited to write, film and create a History of the Future.

5 Images of the Future: increasingly post-industrial society is being perceived and conceived in visual images. A picture may or may not be worth a thousand words, but what is clear is that now and increasingly in the future the visual constitutes a central language of communication. Films on the future, well-made, documented, sequenced and structured by curriculum supports, strike a nice balance between visual interest on the one hand and linkages to and development of other media on the other. At the same time, educators also can raise the level of visual sophistication in general, especially through the project of writing and creating a Super 8 film.

I happily can recommend the entire series not only because I helped to design it but because we have tested, refined and validated all the proposals suggested; and the results exceeded our expectations.

Sincerely,



Dr. Irving H. Buchen
Curriculum Consultant, Document Associates
Projector, Division of the Future,
Fairleigh Dickinson University

This Attitude Survey represents the need for assessment of attitudes when approaching a futures investigation. It is a means to evaluate the impact of the futures study. It can be used as a pre-test and post-test evaluation.

Attitude Survey

Please think about each of the questions and answer it as honestly as possible given your attitudes and perspectives before you entered the first meeting of this class. This information will be used for a research project and will be kept completely confidential.

For each of the following statements indicate your attitude in the space to the left of the question according to this scale:

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE — NEUTRAL — STRONGLY AGREE

____ 1 I think a lot about the future.

____ 2 I have a good idea of where I want to be ten years from now.

____ 3 I feel that society is changing too rapidly and should be slowed down.

____ 4 Society in the future will have less violence.

____ 5 I prefer to associate with people who are very much like me.

____ 6 In class, I prefer to just sit and listen rather than participate by asking questions and raising issues.

____ 7 At a party I prefer to get to know people I've never met before rather than spend all of my time with people I already know.

____ 8 Businesses should not make such great profits.

____ 9 I am willing to accept another person's right to his own views and lifestyle.

____ 10 I wish I had more friends.

____ 11 Frequently I feel that I don't want to reveal my true feelings and I present a mask or facade instead.

____ 12 I would like to see a world government created even though it means that people in the United States will have to live by laws determined by all people in the world rather than those in the United States alone.

____ 13 I believe that more people in the world should practice birth control.

____ 14 People who live in ghettos or slums or in poverty do so basically because they are lazy and not willing to work to improve their living conditions.

____ 15 In most high school courses, students are expected to learn too much too fast.

____ 16 The growth of technology allows man to better control his environment.

____ 17 I can understand and solve problems easily.

____ 18 Women deserve equal rights.

____ 19 I allow societal values and norms to influence what I say and do.

____ 20 We should spend more time finding out who is to blame for the problems we have.

____ 21 Society should be more tolerant of minorities and their rights.

____ 22 Society today has too many laws and is too structured.

____ 23 The rights of the individual are more important than the right of the group.

____ 24 I enjoy thinking.

____ 25 I enjoy creating something.

____ 26 I am very open to new ideas.

____ 27 Very few people in the world do not have enough food to eat.

____ 28 Government should take over businesses and industries which are essential (such as railroads, steel industry, etc.) if these industries do not provide the services needed by society.

____ 29 We can't change the future.

____ 30 War is a necessary fact of life if we can't get our views accepted by any other way.

____ 31 The job I get when I graduate will probably be boring.

In order to compare your responses on this survey with information we shall later ask you for, please write your social security number below.

_____ - ____ - _____

If you do not know your social security number, put your name.

Finally, on the lines below list five events which you feel will occur in the future and then indicate what year the event will most probably occur in.

	YEAR
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Thanks for your assistance by providing this information. Again, your responses will be kept completely confidential.

Credit: Dr. David T. Nelso
Ball State University
Colloquium on the Future
Muncie, Indiana

UNIT: Behavior

Evolution by DNA: Changing the Blueprint for Life	12
Biofeedback: Listening to Your Head	14
Meditation: Yoga, T'ai Chi and Other Spiritual Trips	18
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Primal Therapy: In Search of the Real You	30

EVOLUTION BY DNA: Changing the Blueprint for Life

Subject Areas: Future Studies, Biology

I Content Summary

The work and thoughts of Dr. David Suzuki, noted geneticist from the University of British Columbia, are the focus of this film. In their laboratory Dr. Suzuki and his assistants drastically change the life of Drosophilia, the common fruit fly. By genetic engineering, they have been able to create flies which are paralyzed by either hot or cold temperatures, and have kept alive mutants which normally would have died. They lessons learned from this organism will soon give humans the answer to how genes work in heredity. Once this blueprint of life is known, Dr. Suzuki sees a future in which scientists might be able to recreate long forgotten species, grow test-tube babies and regenerate lost or damaged limbs. Dr. Suzuki is representative of the new breed of scientists who are concerned with the ethical and political considerations of their work. The film proposes that citizens be encouraged to participate with geneticists like Suzuki so that by keeping abreast of the developments society might minimize the misuse of genetic knowledge.

II Cognitive Organizer

1 Have each student select any four letters of the English alphabet and try to construct as many words as possible by arranging them two, three or four in a "code." Discuss these as language codes and the analog condition in DNA codes for different amino acids in living things.
2 If students could redesign themselves what would be the results? Have students bring photos of themselves and by pasting and drawing make new selves.

III Terms

genetic engineering
Brave New World
1984
cell
DNA molecule
chromosomes
genetic signals
genetic tampering
double helix
temperature sensitive mutant
biological weapon
cloning
fruit fly
factors in evolution
malfunction
mutation
genetic code
blueprint
lethal
genetic crossover
fail safe system
redundancy
citizen conscription
autonomous professions

IV Key Questions

1 What is genetic engineering and its relation to natural DNA behavior? List advantages and disadvantages of genetic engineering.
2 Can the genetic make-up of flies, flowers or man be changed with 100 per cent reliability of predicted and preferred traits?
3 Dr. Suzuki said "We may not possess wisdom equal to our ability." Discuss the meaning of this statement.
4 What is Dr. Suzuki suggesting as a means of getting citizen participation in the future control of genetic engineering, medicine, atomic power, other areas?
5 Why are many people skeptical of genetic engineering?
6 What does Suzuki mean by "Science is too important to be left to scientists"?

V Objectives (The student will be able to . . . .)

1 Briefly describe the mechanism of DNA function.
2 Identify the importance of mutation in evolution.
3 State the nature of the limitations inherent in genetic engineering.
4 Indicate moral and ethical considerations of manipulating heredity.
5 List avenues of citizen action in the democratic system to influence the direction of genetic manipulation in organisms, including man.

VI Project and Activity Questions

1 What kind of child would students like to have? Is it possible to control any of these hereditary traits in children?
2 What is unique about Dr. Suzuki's experimental results with fruit flies? Why is he famous?
3 The potential of DNA is unlimited. What does this mean?
4 Are biological weapons now at our disposal to destroy special groups of organisms? Explain.
5 What are the ethical considerations of manipulating humans genetically?
6 What are the biggest challenges in working with the genetic machinery *in vitro* or *in vivo?*
7 Would the students serve on a citizen committee to monitor and study scientific research?
8 Do all persons have the same genetic potential?
9 What natural changes in DNA occur? Are there any man-made (induced) changes in DNA?
10 Is there any evidence that geographical or habitat factors influence natural selection? Apply this to man as well as plant, animals, microbes.

VII Resources

Carl Heintze, Genetic Engineering, Nelson, 1974.

Aldous Huxley, Brave New World, Harper-Row, New York, 1932.

Ashley Montagu, Human Heredity, Mentor Books, New York, 1960.

Molecules to Man (BSCS Blue Version Biology) Houghton Mifflin Co., 1973.

George Orwell, 1984, New American Library, New York, 1971.

James Watson, The Double Helix, Atheneum, Patterson, N. J., 1968.

"The Present Evolution of Man," "The Genetic Basis of Evolution" and "Crises in the History of Life," Scientific American Offprints, W.H. Freeman and Company, San Francisco.

"The New Genetics: Rights and Responsibilities," Science and Mankind, Inc., White Plains, N.Y., slide-tape program.

VIII Citizen Action

Have students identify the attitudes of classmates, family and local government officials regarding conscription for serving on citizen panels to study and monitor scientific research.

BIOFEEDBACK: Listening to Your Head

Subject Areas: Future Studies, Psychology

I Content Summary

This film explores biofeedback, the process by which one listens to and learns to control one's own brain waves. Dr. Barbara Brown, a Los Angeles neuro-physiologist, explains how biofeedback may someday enable humans to control their respiration rate, heartbeat, blood pressure, digestion and even emotions. Her patients give testimony to the seemingly miraculous effects biofeedback training has had. Biofeedback may allow patients in the future to control their own therapy and treatment. The film also examines some of the more unusual uses of biofeedback. York University scientist and composer, David Rosenboom, plays a sample of biomusic made from the internal rhythms of alpha wave feedback and the film visits the Biomeditation Society in California, a group seeking spiritual serenity and self-awareness through biofeedback.

II Cognitive Organizer

1 Have students read the article "What is Biofeedback"?
2 Have five students hold thermometers in their hands and try to "feed" information to their hands that will alter the thermometers' temperatures either up or down during a five to 10 minute interval of strict concentration. A record of beginning and ending temperatures of each student should be recorded. A discussion of "biofeedback" and the range of individual sensitivities to inner messages can then be pursued.

III Terms

biofeedback and biofeedback therapy
alpha waves
beta waves
breader consciousness
altered consciousness
psychosomatic problems
electroencephalogram (EEG)
biomeditation society
biomusic
inner design sciences -- inner space
maya illusion
People's medicine
serenity seekers
first consciousness
visual reality
visual hallucination
neurophysiologist

IV Key Questions

1 What is biofeedback?
2 What is the general purpose of biofeedback in medicine today?
3 What impact could or would biofeedback have for medical science and patient care?
4 Biofeedback has at least three general uses. List them and identify the purposes of each.

V Objectives (The students will be able to . . . .)

1 Identify those elements of biofeedback that would enhance medical therapy.
2 List the new culture forms and various lifestyles evolved from biofeedback.
3 State self awareness processes involved in biofeedback.
4 List ethical, religious and legal considerations involved in biofeedback.

VI Project and Activity Questions

1 What impact would biofeedback have on medical demands? (Seeing the doctor, hospitalization, therapy)
2 What kinds of strategies have been used to combat drug and alcohol dependency besides biofeedback?
3 Speculate on the potential for control of "single cells." Would this potential change the conditions of our present world environment? How?
4 Predict the "new consciousness lifestyle" that could evolve from biofeedback therapy, bioart and biomusic.
5 Do students foresee biomusic or bioart as viable art forms? How so?
6 Socrates said "Know thy Self." What kinds of activities could be considered particularly "self analytic" processes?
7 What other self discovery strategies are involved in the future of mind and body control?
8 What is the value of reviewing the past day's activities? (Introspection)
9 Is there any relationship between biofeedback centers in the home and the need for privacy?

VI Project and Activity Questions (continued)

10 Why are biofeedback impressions different than visual or auditory or tactile impressions of the world?
11 What ethical considerations will be necessary in the future of biofeedback?
12 What implications would "life beyond aging and elimination of sickness" have upon individual rights? The right to die and the euthanasia issue?
13 What religions of the world would support the concept of listening to the brain and controlling body functions?
14 What native American and/or Oriental religions and cultures emphasize the inner meditation techniques or self analysis?

VII Resources

Brown, Barbara, New Mind and New Body; Harper and Row, New York, 1974

———————, *Saturday Review*, "Biofeedback; An Exercise in Self Control," Feb. 22, 1975.

Ferguson, Marilyn, Brain Revolution; Bantam Books, New York, 1975.

McCalls, "Plotting Your Ups and Downs," Jan., 1974.

"Biofeedback -- A New Way to Get Well," *Parade Magazine*, Jan. 18, 1976.

"How Biorhythms Affect Your Life," *Science Digest*, August, 1973.

Physical therapist (local hospital)

Psychologists working with biofeedback (local college or university)

VIII Citizen Action

1 Write letters to researchers of biofeedback asking about the significance of biofeedback therapy.
2 Interview people in the medical profession on their opinions of biofeedback and biofeedback therapy.
3 Have students structure their own biofeedback schedules; chart responses of hunger, pain, relaxation, temperature.
4 Contact medical institutions or psychology departments that have biofeedback facilities and plan a field trip and demonstration of machinery and processes.
5 Have students record the activities and their impressions of a particular class for two weeks to see what effects the record may have on influencing attitudes toward the class and the activities.

WHAT IS BIOFEEDBACK?

We usually think of feedback as information about something that has just happened. Biofeedback, then, is feedback or information about some activity that has just taken place within our body.

Through this new biomedical procedure, an electronic instrument can detect a body function, amplify it and then communicate back to the person through a tone, light or meter.

By paying attention to this feedback about internal states, most people can learn some control over functions previously thought to be beyond our conscious control. These automatic, or autonomic, functions may include body temperature, heart rate, muscle tension, brain waves and many more.

Biofeedback is a learning process which can be divided into three stages:

1 Developing an increased awareness of certain body functions;
2 Gaining control over these functions;
3 Transferring this control to everyday living, without the biofeedback machine.

The biofeedback specialist plays a major role in the first stage of this process. In the second and third stages, however, the main responsibility lies with the participant. In order to develop control over body functions, and then transfer this control to daily living, the participant must have a strong desire to help himself.

Research has shown that the most important factors relating to one's success in biofeedback are: MOTIVATION, EXPECTATION and PRACTICE. If one of these factors is missing, it is doubtful that biofeedback training will be successful.

HOW DOES IT WORK?

Feedback of some sort is necessary for all learning.

Imagine you are learning to throw darts for the first time, wearing a blindfold. Each time you throw a dart, you have no idea how you are doing, and it is impossible for you to improve significantly. Removing the blindfold would enable you to see where the darts are striking (feedback!) and to improve your aim.

Similarly, in biofeedback, the machine provides the information necessary for us to learn control of internal processes we aren't usually aware of; without this information, this control would be very difficult.

HOW DO YOU LEARN IT?

Even people who have successfully learned biofeedback have difficulty describing just how they are doing it. Most often, though, the control is associated with a particular thought, feeling or state of mind. That is, the person begins to notice that when the machine indicates success, he also happens to be feeling a certain way. Gradually, this association becomes stronger, until the person is able to achieve the desired result (for example, lowered muscle tension) by having a particular thought or feeling.

After this association has been "learned" and practiced enough, a person can control this particular body function even without the biofeedback machine.

BUT HOW WILL IT HELP ME AT HOME AND AT WORK?

A question that most people ask! If biofeedback only worked in the clinic or laboratory, it would be of little value to most people. Learning biofeedback is learning a skill, and the biofeedback machine can help us learn the skill initially.

But after the skill is learned, it can be used whenever necessary, without the help of the machine. Thus, if a person has learned deep muscle relaxation, he or she might practice this whenever becoming tense or anxious.

IN SUMMARY

There are many types of biofeedback now being used. Two of the more common types of biofeedback in use are electromyograph (EMG) for lowering muscle tension and promoting relaxation, and thermal, for the control of temperature and blood flow in various parts of the body.

In general, biofeedback helps a person to better understand and control his own mental and body functions, which can result in easier, happier day-to-day living.

MEDITATION: Yoga, T'ai Chi and Other Spiritual Trips

Subject Areas: Future Studies, Psychology, Religion

I Content Summary

Two and a half million people in North America are trying Zen, yoga and other Asian meditation techniques today -- an increase of 1000 per cent in 10 years. This film visits the School of Hatha Yoga, interviews author and philosopher Alan Watts and looks at theater students working on traditional T'ai Chi forms. Other individuals interviewed feel that yoga may be helpful in dealing with the problems of alcoholism and drug addiction. Some advocates, in fact, make medical claims that yoga is the perfectly safe cure for all mental and physical illnesses.

II Cognitive Organizer

Have students sit on the floor (in an unrestricted setting, if possible). Have them cross their legs in the yoga position or any position that is comfortable. Have students spend 15 or 20 minutes concentrating on internal rhythms and sounds. After the students have experienced this concentration, have them discuss serenity or peace within themselves. Did they find that the concentration helped them to get in touch with their spirit, body and/or mind? Why or why not? Do they feel that meditation is valuable? How so? Why or why not?

III Terms

limited presence
loss of self
rediscovery
T'ai Chi
universal energy flow
eastern intuition
Zen
state of Nirvana
Maharishi
guru
focal point
TAO
doctrines of reincarnation
eastern religion
om (cosmic sound)
cosmos
self discipline
essence of body, mind and spirit
despiritualization
Western intellect
Hatha Yoga
Asian Invasion
taboo

IV Key Questions

1 Who was responsible for introducing meditation to the general public of the Western world?
2 What aspects of T'ai Chi help the individual get away from the intellect and back to feelings?
3 What are some other forms of meditation being practiced today?
4 Alan Ginsberg said "We are science fiction now . . . whoever controls the language, the images, controls the time." In light of this statement, why is meditation important?
5 What Western taboos restrict meditation?

V Objectives (The student will be able to . . . .)

1 List various forms of meditation being practiced today.
2 Describe the philosophy behind meditation.
3 Identify elements of Eastern religion and psychology found in meditation.
4 Identify Western taboos that reject meditation.

VI Projects and Activity Questions

1 Why is meditation so popular in Western life in the second half of the Twentieth Century? Why are people turning to meditation?
2 Have the students ever experienced elements of meditation without practicing it? Where and how?
3 The film states, "Western man was prevented by taboos (Puritan Ethic) from feeling his total presence." Why is this such a prevalent problem for western civilization?
4 Meditation has a focal point that concentrates on self discipline. Is meditative self discipline more effective than Western-oriented self discipline?
5 Will meditation become a permanent part of Western culture or is it only a passing fad?
6 Is meditation the same as religion?

IV Project and Activity Questions (continued)

7 How do various forms of meditation, discussed in the film, help people to live in the eternal "now"?
8 What do the different forms of meditation have in common and how do they differ?
9 In what other area of interaction between East and West has Asian influence been greater? Or can it be observed? (Economics, politics)
10 Do Western Indians have elements of Eastern religion in their cultures?

VII Resources

Christmas Humphreys, Concentration in Meditation, Penguin, New York, 1970.

Kenneth Lamott, Escape from Stress, Putnam, New York, 1975.

"Physiology of Meditation," *Scientific American*, 1972.

VIII Citizen Action

1 Contact physicians and other professionals in the medical community for their views about meditation (yoga to TM) as a form of cure for mental and physical illnesses.
2 Contact persons who practice meditation and ask for a demonstration of their techniques. Have them discuss the benefits and other aspects of their meditational techniques.
3 Investigate other forms of dealing with personal and social problems. Do they have elements of meditation involved in their approach?
4 Interview a theatrical troupe or persons involved in the arts. Ask them about their views on meditation. Would they approve of it as a theatrical or artistic exercise?
5 Check with an athletic coach to see if there is a relationship between "psyching up" for athletic competition and meditation. How are they alike and different?

THE BRAIN: Creating a Mental Elite

Subject Areas: Future Studies, Psychology, Biology, Physiology

I Content Summary

The human brain is the most complicated structure in the known universe. This film examines the three major areas of brain research which contribute to the working and development of the brain. These are chemical and electrical stimulation and environmental conditioning. Among those interviewed in the film is Arthur C. Clarke, one of the world's leading writers in the area of space research and science fiction. Clarke speculates on the possibility of imprinting knowledge directly onto the brain and thereby bypassing normal learning procedures. The film shows Montreal's Neurological Institute where scientists developed techniques for the electrical stimulation of the brain. Also discussed and illustrated are experiments dealing with the storage and retrieval of memory, and the effects of the environment on the brain.

II Cognitive Organizer

Develop a series of stained slides to show neurons of different types, an x-section of a nerve, grey and white matter of the spinal cord and brain cells (neurons) and synapses. Include models of the nervous system.

III Terms

chemical elite
artifical inputs
ESP
epileptic disorder
mediation of memory
electre-chemical system
"spark men"
"soup men"
brain mapping
voltage
mechanical educator
statistical ensemble
field theory
sensory attributes
evocatve
synapse
enriched environment
I.Q.
enriched language environment
brainwashing
mass media
futurology
mood control
neuron
nerve

IV Key Questions

1 If it will be possible in the future to make people stupid or smart, how will society handle these possibilities?
2 What are some general understandings which have come from ESP? What other approaches have been made?
3 For what reasons should scientists pursue the concept of species specific enriched environment?
4 Why should society set a greater priority on understanding mass media and schools than on understanding the research of brain neurophysiologists?
5 Arthur Clarke referred to designing the future and not predicting it. What did he mean?

V Objectives (The student will be able to . . . .)

1 Identify the three approaches to brain research which contribute to the working and development of the brain.
2 Describe the field theory of memory.
3 Define a species specific environment for learning.
4 Identify the features of schools which make them psychologically enriched environments for humans.
5 State at least one good reason for studying the future.

VI Project and Activity Questions

1 What is the field theory of memory? Relate it to specific experiences.
2 If memory can be erased via chemicals, should it be done any time in humans? What are some cautions?
3 What is meant by species specific environment? List difficulties in research dealing with species specific environments as scientists work with animals and postulate learning theories. Is this approach the current practice?
4 What would happen to institutions and their functions if the I.Q. of all people was raised 30 points? How would society deal with the consequences?

VI Project and Activity Questions (continued)

5 Investigators in neurophysiology are sometimes called either "soup men" or "spark men." What does this mean? How has the view of brain functions changed since Shelly's Frankenstein was published?
6 What do students think of Arthur Clarke's speculation of the possibilities for direct imprinting of knowledge on the brain?

VII Resources

Barbara Brown, New Mind, New Body, Harper and Row, New York, 1974.

Arthur Clarke, Profiles of the Future, Harper and Row, New York, 1973.

Marilyn Ferguson, The Brain Revolution, Bantam Books, New York, 1975.

Miller and Leavell, Anatomy and Physiology, Macmillan Publishing Company, Inc., New York, 1972.

"Inside the Brain," *Saturday Review*, Aug. 9, 1975. (five articles on the brain)

VIII Citizen Action

Ask a group of parents to view the film in this unit and discuss the question, "Is your school a psychologicaly enriched environment for your son/daughter?"

VIOLENCE: Will It Ever End?

Subject Areas: Future Studies, Sociology, Psychology, American History

This lesson is not available by broadcast because it contains nudity and/or violence. It is available on a free loan basis from the Nebraska Department of Education ITV Services in video cassette format. If another format is needed, send your videotape and purchase order for $29.50 (the cost for dubbing onto your tape) to NDE ITV.

I Content Summary

This film explores the ever-increasing violence in society in an effort to see future possibilities. The film implies that there are two directions in which humans can move: humankind can change or humankind can change society.

The work of Yale University researchers who are experimenting with electrical stimulation of animals' brains is described. Electrodes implanted in monkeys' brains have allowed the researchers to change the animals' behavior by radio waves. This kind of research could lead to such future possibilities as psychosurgery and mind control.

Another area explored is the social environment of violent acts. Dr. Rollo May sees the breeding ground of violence in human feelings of helplessness and impotence. His ideas, juxtaposed with views of ghetto culture and interviews with gang members in New York City, suggest that the answers to violence may be in major social and economic reform.

II Cognitive Organizer

Reprint the article "Television and Violence" and the program chart. Discuss the reading and assign students to collect program data. After three or four days of data gathering, discuss the results with the class.

III Terms

implied violence
consciousness
sense of potency
cortex of the brain
two-dimensional TV
glorified violence
ghetto art
plastic society
Walter Mitty
paranoid
Sam Peckinpah
upward mobility
parochialism
"Saturday Night Special"
"happiness is a warm gun"
psychosurgery

IV Key Questions

1 The film emphasizes physical violence. What other kinds of violence have detrimental effects on victims?
2 Why do you think the American people accept violence on television as part of their "prime time" entertainment?
3 What aspects of American life have helped develop violent behavior?
4 Are there options available to people in American society to choose between violence and non-violence?
5 What is the relationship between the "street gang" commitment to protect their neighborhood and the "patriots" of the American Revolution? Is there any? Why or why not?

V Objectives (The student will be able to . . . .)

1 Identify the types and quantity of crime and violence which occurs yearly and daily in America.
2 Analyze the behaviors of the "street gangs" (Ghetto Bros.) as they apply to the concept of violence.
3 Predict the influence of violence on the behaviors of American youth today and in the future.

VI Project and Activity Questions

1 How justifiable is the use of electrode implants to control human violence? Are rights of individuals denied in such acts?
2 How much violence is spurred by early lifestyles? By hopelessness?
3 Why has society left out ghetto life?
4 Why don't victims of felony crimes report them?
5 What is the intent of the graffiti on the subway?

VI Project and Activity Questions (continued)

6 What induces a street gang to train a "junior group"? Is it a continuance of the gang's attitudes or a natural phenomena?
7 Is violent behavior spurred more by physical rather than emotional needs? Explain the difference.
8 Are there more subtle forms of violence?
9 Would primal behavior therapy help to eliminate violence?
10 Does violence differ across the country? In Omaha? In New York? In Alliance?
11 Would religion or a moral code, or a lack of either, influence violence?
12 Would movement of ghetto residents to suburbs decrease or increase violence in their new neighborhoods?
13 Middle class America has funded some aggressive athletic programs; do you think this experience of aggression curbs violence in the suburbs?
14 Do you think "poor" people receive equal justice in our criminal justice system? Why or why not?
15 Recent research indicates that violence in TV programs is bad, financially, for the advertisers who sponsor the programs. Discuss the implications.

VII Resources

Claude Brown, Children of Ham, Stein and Day, New York, 1975.

Arthur Daigon, Violence: USA, Bantam Books, New York, 1975.

Hugh I. Graham and Ted R. Gurr, (ed.), A Report to the National Commission on the Causes and Prevention of Violence in America, Bantam Books, New York, 1969.

Joseph T. Howell, Hard Living on Clay Street, Anchor Books, Garden City, N.Y., 1973.

Richard Kostelanetz, (ed.), Social Speculations: Visions for Our Times, William Morrow, New York, 1971.

Rollo May, Power and Innocence, Delta, New York, 1972.

Margaret Mead, Culture and Commitment, Doubleday, New York, 1970.

Peter B. Medawar, The Future of Man, New American Library, New York, 1961.

Donald N. Michael, The Future Society, Aldine Publishing Co., Chicago, 1970.

VIII Citizen Action

1 Do a study on crime in your community. Try to find the cause or motivation behind the criminal action.
2 Compare the attitudes of the Ghetto Bros. toward protecting their neighborhood and that of a military leader protecting his/her country.
3 Research the influence of television on violent behavior and write a letter of advocacy related to your findings to a local TV station.
4 Read about organized crime in the United States and report to the class the impact of violence in organized crime.
5 Invite the local sheriff or chief of police to talk to the class about some of the violent behaviors which occur in the community and try to explore the reasons for such actions.
6 Write to the National Gun Control Center, 1201 Connecticut Avenue, N.W., Washington, D.C. 20036 for literature which opposes "Saturday Night Special" sales, and to the National Rifle Association local affiliate for literature. Compare these organizations' arguments for and against gun control.

Television & Violence

Report from a National Commission on the Causes and Prevention of Violence

That there is a great deal of violence on television is clear to everyone. In an effort to specify how much and what kind, we have examined the results of the numerous analyses that have been made of the content of television programs.

Much relevant evidence is to be found in testimony presented in hearings before the Senate Subcommittee to Investigate Juvenile Delinquency in 1955, 1961 and 1964. Some of these studies counted the number and kinds of violent acts on television, finding, for example, in a week of television watching in New York City in 1953, an average of 6.2 acts or threats of violence per one-hour program. Another study in 1962 compared the occurence of "protective and affectionate" behavior, finding a four-to-one ratio of assault to affection. Other studies considered the proportion of total television fare represented by programs featuring violence. One such analysis suggested that the percentage of prime time "action and adventure" programs approximately tripled between 1954 and 1961, reaching the point where such programs constituted between one-half and two-thirds of all programs in the 7 to 10 p.m. time span. (Further analyses in 1964 showed no change in the offerings of television stations in several large cities, despite a substantial reduction of violent-format programs by CBS in the period between 1962 and 1964.)

More recent studies have tried to refine the analysis of television content by considering the extent to which violence is used as a means of problem-solving in television drama. Thus, in a study published in 1963 one group of researchers classified program goals and examined what methods were used to obtain these goals. They found that violent means predominated: in children's shows, for example, violent means were used 47% of the time, with "escape" and non-legal means short of violence adding another 15%. The researchers concluded that methods which are not socially approved seem to be portrayed in television content as having a better chance of achieving the desired goal than those methods which are socially approved.

The National Commission on the Causes and Prevention of Violence had an independent analysis made of all dramatic television programs presented by the three major commercial television networks during the prime children's and adult's viewing time (4 to 10 p.m. on weekdays and Sunday and Saturday mornings in the week of October 1 through 7, 1968 and in the same week in 1967. This study attempted not only to measure in a number of different ways the amount of violence in network dramatic programs but also, and more importantly, to present a picture of the kind of world in which television violence occurs. Some of the findings of this study are here summarized:

In both 1967 and 1968 approximately eight out of every ten dramatic programs contained some violence. On the other hand, the total number of violent episodes in the study week declined by nearly one-fifth between the two years (from 478 to 394). This decline somewhat exceeded the decline in the total number of hours of dramatic programs (from 64 to 58.5); accordingly, the rate of violent episodes per hour showed a decline from 7.5 in 1967 to 6.7 in 1968.

Of the crime, western, and action-adventure programs comprising about two-thirds of the networks' dramatic programs in both 1967 and 1968, virtually all contained violence in both years. Similarly, in both years they averaged about nine episodes per hour.

Cartoon programs comprised only about ten percent of the total hours of dramatic programs, but they were almost entirely concentrated in the children's programs on Saturday morning. Almost all the cartoon programs contained violence, and the rate of violent episodes was quite high in both years -- more than 20 per hour.

Three-fourths of all violent programs and nearly nine out of every ten violent episodes were found in the crime, western, action-adventure category. Analysis of all program categories showed that eight out of every ten violent episodes occurred in a serious or sinister context. Overtly humorous intent (slapstick, sham, satirical) could be observed in only two out of every ten violent episodes in all program categories. Comparing the 1968 study week with that from 1967, however, there did appear to be a shift of perhaps one in every ten violent episodes out of the "serious" category into the "humorous" category.

The programs of each of the three major commercial networks contributed in different ways to the overall level of violence on television, depending on the measure of violence which is used. ABC's dramatic programs, for example, contained the greatest number of violent episodes in 1967, but that network significantly reduced the number of such episodes and in the 1968 study week was lowest in total number. In both years, however, ABC led in the percentage of dramatic program hours containing violence. CBS was least violent by this measure; but it slightly increased that percentage in 1968 and it substantially increased the rate of violent episodes per program hour. In the 1968 study week, NBC had the greatest number of violent episodes, and taking the two study years together, NBC was the leader in the amount of time devoted to programs in the category of crime, western, action-adventure.

What these findings confirm is that, as of 1968, the viewing public was still being exposed to a high level of television violence. What was the nature of this violence? What were the moral and social values explicit or implicit in the context within which the violence was portrayed?

Violent encounters in televised drama, unlike violent encounters in real life, are rarely between intimates. They generally occur at close range between young to middle-aged single mates who, half the time, are strangers to each other. Six times out of ten, the violent acts involve the use of weapons; equally often, the act evokes no counterviolence from the victim.

More than half of all the leading characters in the programs (241 out of 455 identified in the two sample weeks) inflict violence in some form upon other persons. Most of these violent encounters (eight out of ten) are between clearly identified "good guys" and "bad guys." The violence is initiated about equally by each type, so that the distinction between "good" and "bad" is not determined by the use of violence.

Those who commit acts of violence more often perceive them to be in their self-interest than in the service of some other cause. Nearly half of all the leading characters who kill (25 of 54) and more than half of all leading characters who are violent (126 of 241) achieve a clearly happy ending in the programs. To this extent, violence is portrayed as a successful means of attaining a desired end.

Half of all violent episodes do not involve witnesses. When present, witnesses are usually passive and either do not or cannot intervene. In the rare instance in which a witness does intervene, it is as often to encourage or assist violence as it is to prevent it. To this extent, violence is not shown to be unacceptable in the immediate social context of the world of television drama.

Lawful arrest and trial are indicated as a consequence of major acts of violence in only two out of every ten violent programs. But the question of legality seldom arises because in the world of television drama violence is usually presented outside of any relevant legal context.

Physical pain -- details of physical injury or death -- is shown to be a consequence of violence in only one out of every four violent acts. In television drama violence does not hurt too much, nor are its consequences very bloody or messy, even though it may lead to injury or death.

In summary, then, television portrays a world in which "good guys" and "bad guys" alike use violence to solve problems and achieve goals. Violence is rarely presented as illegal or socially unacceptable. Indeed, as often as not, it is portrayed as a legitimate means of attaining desired ends. Moreover, the painful consequences of violence are underplayed and de-emphasized by the "sanitized" way in which much of it is presented.

NAME _____ WEEK _____ CHANNEL _____

The preceding artcle about television violence refers to information gathered from the programs of 1967 and 1968. Here is a guide for the study of current programming to help you measure the amount of violence on prime-time television and compare results among programs and networks. You may then compare the change -- or lack of change -- in television's "violent world" between 1968 and the present.

Select one channel and watch its prime-time programs (8 - 11 EST, 7 - 10 CST and so forth) for a week. Next to the program title and length, place a check under the appropriate heading for each violent act you see. If possible, you may want to divide up the viewing for each channel and combine results later, so that one person will not have to research 21 hours during the week.

Program Title	Program Length	Verbal Threat of Physical Harm	Physical Conflict Without Weapons	Gun Seen	Other Weapon Seen	Human Wounded	Human Dies A Violent Death	Animal Wounded Or Killed

During my evenings of viewing, there was one violent act shown approximately every _____ minutes.
(Find an average by dividing program length by number of items checked.)

The following program(s) seems to be the most violent:

_____

SOCIOBIOLOGY: Doing What Comes Naturally

Subject Areas: Future Studies, Biology, Anthropology, Sociology

This lesson is not available by broadcast because it contains nudity and/or violence. It is available on a free loan basis from the Nebraska Department of Education ITV Services in video cassette format. If another format is needed, send your videotape and purchase order for $29.50 (the cost for dubbing onto your tape) to NDE ITV.

I Content Summary

Sociobiology is a new field. Can it help humankind plan its own survival? Is it possible to relate the behavior patterns of insects and animals to human behavior? Are there universal laws that govern all living creatures? Is humankind just another endangered species? In the hope that more understanding of the nature-nurture controversy might bring a better future, these and other questions involving nature and society are examined in this film. Harvard anthropologist Irven de Vore suggests evidence that humans and certain animals are biologically programmed to behave the way they do. As an example he discusses the striving for status found in all animals. Humans are animals. Dr. R. Trivers, another researcher, says, "Unpleasant as it may sound, I think there are certain components in our behavior that predispose us to things like warfare." Possibly today's youth revolt is another step in human evolution. The film concludes that people should start viewing the biological aspects of humankind and set up a physical and social world that accounts for them and drop the assumption that human nature is totally malleable. Man is the first species that can consciously control its own survival.

II Cognitive Organizer

1 Distribute copies of "Aggression: Instinctive?"/"Agression: Learned?" Discuss each proposal.
2 On a blackboard or overhead projector, write the terms "nature" and "nurture." Have the students brainstorm ideas about which of their behaviors are controlled by their genetic make-up (nature) and those they believe are socially conditioned behaviors (nurture). You may want your school's biology, sociology and psychology teachers present for a panel discussion of the students' concepts about their behavior. Sociobiology is a rather controversial topic and several experimental findings show radically different results.

III Terms

sexual behavior
biological component
programmed sex behavior
social roles
sexual liberation
organism
emotional pre-disposition
impregnate
status
genetic code
social biology
gland extract
nuclear family unit
Darwinian Evolution
natural selection
reproductive success
sexual component to warfare
programming for conquest
birth control pills
biological time-bomb
sacrosanct
endangered species
pre-marital
Peter Principle
youth revolution
women's liberation
"old wives"
industrial economy
social traits
corporate mobility
systematic study
martial music
vulnerability

IV Key Questions

1 What does Dr. Trivers mean by the term "biologically programmed" when referring to humans?
2 Dr. Trivers states that the women's liberation movement takes issue with his hypothesis. How and why?
3 Define Darwin's "natural selection."
4 What evidence of a sociobiological reaction occurs in the standard family unit?
5 A reactionary revolt is occurring in society, the development of the communal life style has challenged some fast-changing values. What are the general foci of alternative lifestyle proponents? Is the youth revolution a component of human evolution or is it an aspect of Western cultural condtioning?

V Objectives (The student will be able to . . . .)

1 Define natural selection in Darwinian terms.
2 Explain the controversial nature of sociobiology.

V Objectives (continued)

3 Define "biological programming" as an explanation for human behavior.
4 Recognize primate behaviors other than those of a patriarchal nature.

VI Project and Activity Questions

1 Marmosets have a matriarchal structure, with female dominance; the males care for the young and tend the home. Other animals also have a similar structure. In this light, where do Trivers' and DeVore's theories of "sexual pre-disposition" fit? Is it unfair to extrapolate behaviors of higher primates and apply them to human behaviors? Perhaps primate behavior is the result of very primitive but tangible learned behavior within the primate group?
2 In the film, it is said that "the nuclear family has a major place in the theories of most major psychologists." The film proposes that children are "biologically programmed" for conflict as part of the evolutionary process. Discuss this concept.
3 How is Darwin's concept of natural selection evident today?
4 According to the film, youth today are rebelling against the values they are constantly forming. How is this important to sociobiology?
5 What is "natural"? How can people determine whether they are performing a natural or conditioned behavior?
6 Is war learned or a part of the human biological program? What supports your theory? What is pre-disposition? Chart your own.
7 Are humans an endangered species?
8 Are men more interested in status than women? What factors might determine this?
9 According to the film, with the birth control pill women are released from traditional roles. Is this of social consequence or biological consequence? Both?

VII Resources

Jones and Bodmer, Our Future Inheritance: Choice or Chance?

Mazur and Robertson, Biology and Social Behavior, Free Press, New York, 1974.

Ashley Montagu, Human Dialogue, Free Press, New York, 1967.

Jean Rostand, Humanly Possible; A Biologist's Notes on the Future of Mankind, Saturday Review Press, New York, 1973.

"Facing Tomorrow's Civilization," *Current*, October, 1975.

Review of "Sociobiology," E. O. Wilson, *Scientific American*, October, 1975; *Harper's*, November, 1975; *Science News*, Nov. 29, 1975.

"Troubled Birth for New Discipline," *Science*, Mar. 19, 1976.

"Social Determinism and Behavioral Genetics," *Science*, Sept. 26, 1975.

"Psychology Constructs the Female or the Fantasy Life of the Male Psychologist," Naomi Weisstein, *New England Free Press*, 1971.

VIII Citizen Action

1 Arrange for a panel of biologists, sociologists, psychologists to discuss "biological programming."
2 Continue investigation of DeVore and Trivers theories.
3 Compare DeVore and Trivers with anthropologist Ashley Montagu.
4 Review causality of past wars. Is there evidence that warfare has a biological source?
5 Investigate primate behavior. Does it reflect Triver's or DeVore's theories?
6 Investigate current "women's activist" philosophy.
7 Look at different models of various vertebrate brains, to get an idea of the variation in structure. Is there a relationship between structure and biological evolution?

Aggression: Instinctive?

Konrad Lorenz
(Ethologist)

To survive, all animals need aggressive tendencies -- that is, they must have the capacity to struggle for something they want. Animals will fight even members of the same species if they have to. However, animals rarely kill members of their own species. When one animal has defeated a member of the same species in a fight the winner stops short of killing the loser; and often there is a signal to let the animal know he has won. In human evolution while the tendency for aggression remains, those control signals have been lost. The development of weapons got in the way of the loser's gestures and the weapons provided man with a capacity to kill that he did not biologically possess. Therefore, aggression is innate in man -- an inborn trait.

Robert Ardrey
(Anthropologist)

In order for animals to survive they need to stake out certain territory. They then defend this territory in order to guarantee a food supply and a chance to raise their young. Humans also have the same need to defend territory. This helps explain why nations go to war. People fight for much the same reason.

Desmond Morris
(Journalist)

Homo sapiens has remained the naked ape; but in acquiring lofty new motives, he has lost none of the earthy old ones. We cannot understand the nature of our aggressive urges unless we consider the background of our animal origins.

Raymond Dart
(Anthropologist)

Man is a descendent of the killer ape and therefore, is an innately aggressive killer who has separated himself from his anthropoid relatives.

Aggression: Learned?

Albert Bandura
(Psychologist)

People do not have to be angered or emotionally aroused to behave aggressively. A culture can produce highly aggressive people, while keeping frustration at a low level, by valuing aggressive accomplishments, furnishing successful aggressive models, and ensuring that aggressive actions secure rewarding effects. Since aggression does not originate internally and its social determinants are alterable, social learning theory holds a more optimistic view of man's capacity to reduce the level of human destructiveness. People are not born with preformed repertoires of aggressive behavior; they must learn them in one way or another.

Ashley Montagu
(Anthropologist)

Throughout the five million years of man's evolution the highest premium has been placed on cooperation, not merely intragroup cooperation, but also upon intergroup cooperation, or else there would be no human beings today. It is not man's nature; but his nurture in a highly competitive, dehumanized threatening world, that requires our attention.

Rene Dubos
(Biologist)

The potentiality for aggressiveness is indeed part of man's genetic constitution, just as it is a part of the genetic constitution of all animals. But, the manifestation of all genetic potentialities are shaped by past experiences and present circumstances. There is no genetic coding that results in aggressiveness.

L. S. B. Leakey
(Anthropologist)

Early man was a scavenger -- not a killer. Cooperation, sharing, and unity, were more important for his survival than violence.

(The source for this chart is not known.)

PRIMAL THERAPY: In Search of the Real You

Subject Areas: Future Studies, Psychology

This lesson is not available by broadcast because it contains nudity and/or violence. It is available on a free loan basis from the Nebraska Department of Education ITV Services in video cassette format. If another format is needed, send your videotape and purchase order for $29.50 (the cost for dubbing onto your tape) to NDE ITV.

I Content Summary

Some persons believe that Primal Therapy, a method of treatment developed by California psychologist Arthur Janov, is the most significant advance in psychology since the work of Sigmund Freud. In the film, Arthur Janov, author of "The Primal Scream" and "The Anatomy of Mental Illness," looks at the claim that his is the first therapy to deal with the neurotic patient as a whole. Primal Therapy assumes that there exists within everyone a state of being free from tensions and defenses, knowing no split between conscious and subconscious awareness. Primal Therapy helps the patient reach this state by allowing him/her to uncover the hurts of childhood and relive them, thus freeing the real person. The therapy may go on for six months or more, until the patient is "all put back together." As humankind seeks ways of living harmoniously with self and others, it may find Primal Therapy to be an important part of life for the future.

II Cognitive Organizer

1 Give a dictionary definition for the word "primal."
2 Ask students to think about what Primal Therapy might mean to them.

III Terms

trauma
inner self
primal pain
primal scenes
crying
neurotic tension
memory circuit
reverberating circuit
bio-signals
easy birth
final resolution
inner relationships
pre-verbal material
real you

IV Key Questions

1 What is the rationale behind Primal Therapy?
2 What does reliving a primal scene eliminate? How?
3 What does Arthur Janov consider a natural function or release from tension?
4 What two basic behaviors does Janov believe ease the hurts of childhood?
5 Explain pre-verbal material.
6 What does Janov hope would occur if everyone was relieved of neurotic tension?
7 What monitoring devices are used to identify body changes in therapy?

V Objectives (The student will be able to . . . .)

1 Define Primal Therapy in psychological terms.
2 Compare Primal Therapy to other forms of therapy including biofeedback and religion.
3 List Janov's basic needs for children.
4 Identify the rationale for Primal Therapy.

VI Project and Activity Questions

1 Are primal experiences always traumatic? Would individuals recall events other than traumatic ones?
2 How does the body respond to Primal Therapy?
3 Why do individuals in a group therapy session never confront each other during a primal scene? With whom and under what conditions would you feel comfortable enough to have a primal experience?
4 Is the "final resolution" the cure of a neurosis? Relate Primal Therapy to biofeedback. How are they alike? Different? Is there a need for Primal Therapy?
5 Do all "sick" societies need revolution? Is that an absolute? Is evolution of an institution or society an attempt to avoid "final resolution" or violence? How do you identify a "sick system"? Discuss the statement, "No sick system gives itself up voluntarily, without a struggle."

VI Project and Activity Questions (continued)

6 Discuss Primal Therapy as a revolution.
7 Rollo May, psychologist: "The opposite of love is not hate, but apathy." How does this relate to Primal Therapy?
8 Is "crying" therapy?
9 What other kinds of therapy or methods are used to help individuals cope with unpleasant events in their past?
10 What kinds of behavior are most significant to the students in developing normal human relationships?
11 Under what conditions would reverting to the primal scene be beneficial to the treatment of neurotic tension? Does it belong in the domain of the layperson?

VII Resources

Arthur Janov, Feeling Child, Simon and Schuster, New York, 1973.

_____, Primal Revolution, Touchstone-Clarion, Louisville, Kentucky, 1974.

_____, Primal Scream, Putnam, New York, 1970.

"Primal Therapy," *The New Yorker;* Aug. 26, 1974.

"Can Primal Therapy Shortcut the Return to Happiness?" *Vogue,* Sept. 1, 1971.

VIII Citizen Action

1 Consult with local professionals, doctors, psychologists, counselors, ministers, about Primal Therapy. A panel could be established to view the ideas of these professionals on the topic of Primal Therapy.
2 Investigate offshoots of Primal Therapy such as re-birth therapy.
3 Investigate Lemaze and painless childbirth techniques. Consult with professionals, nurses, mid-wives, doctors about these practices.

UNIT: Communications

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MEDIA: Massaging the Mind

Subject Areas: Future Studies, Communications

I Content Summary

Satellites, lasers and holograms will be the techniques for delivering the media's messages in the future. The content will be whatever the individual is willing to pay for. Isaac Asimov, scientist and writer, has called these "weapons" the Fourth Revolution. Newspapers and magazines, pioneers in the mass media, will be radically altered by the continual speed-up of electronic journalism. Newspaperman Arnold Agnew suggests that newspapers of the future will be produced in an entirely different manner -- "You may push a button in your living room and get financial news" in a facsimile newspaper.

Former editor-in-chief of *Look* magazine, William Arthur, suggests that the loss of magazines such as his has national importance in that the public will become less informed. Dr. Ernest Dichter, media specialist and founder of the Institute for Motivational Research, suggests that the specialization of magazines for specific audiences will help them survive.

The role of television in shaping politicians is also explored. *New York* magazine columnist, publisher of *MS.* magazine and feminist Gloria Steinem, and Joe McGinniss, author of The Selling of the President discuss electronic image making.

II Cognitive Organizer

1 Using videotape equipment, students may produce their own impressionistic video program (street TV, home movies) OR
2 Students can design a mock program schedule for their own personal "in home" television program selection. Have them list priorities and rationale for choices.

III Terms

audio visuals
video equipment
mass media
"Fourth Revolution"
holograms
hardware/software
home entertainment center
satellite broadcast
self-indulgence
survival entertainment
lasers/optical physics
electronic image making
community television
specialization
psychological "typing"
individualization
ideological positions
right wing, left wing
total aura/total image
orchestrating obsessions
vertical programming
street television
people's video theatre
electronic communication
cable television
entertainment banks
human catalyst
video grammer
radical software
monitors
horizontal programming

IV Key Questions

1 Which different media are the "mass media"?
2 Which medium of communication is losing ground swiftly? And why?
3 How can politicians effectively use television? Why?
4 List some of the new trends in television.
5 What type of home entertainment can people expect by the year 2000?

V Objectives (The student will be able to . . . .)

1 Identify current media trends.
2 Predict future media trends.
3 Define the general terminology surrounding the media.
4 List ways visual media have changed American culture.

VI Project and Activity Questions

1 How do the media affect perception of the environment?
2 Do the media actually affect the environment? Has television changed people's lives?

VI Project and Activity Questions (continued)

3 What improvements do students think should be made in television programming?
4 For what other purposes might television and videotaping be used? Should the media be censored? If so, by whom?
5 Mass media have been labeled the "Fourth Revolution" by Isaac Asimov. What were the other three revolutions?
6 What effect on viewing habits will three-dimensional television have? Will it affect the viewing arena?
7 How does TV influence concepts of violent behavior? Is there too much violence on TV?
8 How do the media affect consumer buying habits?
9 The *Village Voice* has been predicted to survive while other newspapers and magazines fold. Why is it likely to survive? Is it its specialized format?
10 A danger of reading blindly is that people may read themselves stupid. Is this also a danger of TV? Can people watch themselves stupid? By accepting TV as a norm, and not questioning its validity, are people setting themselves up for a sudden let down?
11 What place does the school newspaper have in the media realm? Is it a specialized medium? Should more individual opinion be represented in the school paper?

VII Resources

Wilson B. Key, Subliminal Seduction, New American Library, 1974.

Joseph McGinniss, The Selling of the President, Trident, Los Angeles, Calif., 1968.

Marshall McLuhan, many titles.

"Media Literacy: The Right to Know," *English Journal*, October, 1974.

"Mass Media in the 1976 Presidential Election," *Society*, September, 1975.

"Direct Broadcast Satellites and Cultural Integrity," *Society*, September, 1975.

"Great Media Rush of 1970s," *America*, Feb. 8, 1975.

"Mediacracy," *National Review*, May 9, 1975.

"The Medium Is the Message" and "Child Of the Future," films by Marshall McLuhan.

VIII Citizen Action

1 With electronic equipment, tape recorders, cameras and videotapes, a variety of projects can be conceived. Investigative journalism, dramatic productions, commercials and personal commentaries are some possibilities.
2 Design a mock program schedule for home TV.
3 Make up a terminology quiz using current and past media jargon. Part of the assessment could focus on student awareness of media people, programs, products and the slogans/emblems that represent them.
4 Videotapes of political candidates could be analyzed to understand the strategies behind image making.
5 Draw analogies between print and visual media and diagram the divergencies. Speculate on why this occurs.
6 Call upon local radio and TV announcers for interviews or lectures. Include "print" persons.
7 Investigate the impact of violence on TV audiences.
8 Investigate the impact of printed and televised commercials on their audiences.

MUSIC: The Electronic Edge

Subject Areas: Future Studies, Music, Physiology, Physics

I Content Summary

The new wave of electronically produced sounds has shattered previous notions fostered by classical music. Not only have compositions been affected but also orchestra-audience relations have changed. No longer do people only sit in neat rows listening. The new breed of concert goer becomes involved in what musicians are doing, moves about and takes part in the event. Thus the entire concert becomes a massive revolving entity. Interviewed in the film are a number of individuals who are totally involved in current music, fervently believing that today's sounds are here to stay.

Music of the future will not be restricted to what can be produced by strings or brass instruments. David Rosenboom, currently conducting research at York University, explains his theory of "brain-produced" songs. The brain gives off alpha waves which, when wired to a monitor, can be used to create sounds. Rosenboom demonstrates how the waves can be controlled and set into a form resembling a composed melody.

II Cognitive Organizer

Music is in a dynamic state, many traditional forms and new forms (electronic, country, rock) are moving toward singularity. Have students bring selections to class that represent the blends of traditional music forms and new forms. (For example, Bach played with Moog synthesizer.) Discuss how these blends represent a work of art for the "here and now," and are indicative of other aspects of current society.

III Terms

Beatles' influence
tribal world cultures
appetite for sound
avant-garde philosopher
impressionistic radio
environmental sounds
emotional litmus paper
electronic infiltration
multiplicity of direction
Marshall McLuhan
deliberate disorganization
data radio
information energy exchange
cosmic awareness
mainstream, mainline
elastic medium
synthesizers
biofeedback/alpha waves
free-form composers
universal structures

IV Key Questions

1 What major breakthroughs did the Beatles make in developing a new philosophy for music?
2 Concert audiences no longer sit in neat rows; what is the latest behavior and what is the purpose of this behavior?
3 How is biofeedback music produced?
4 How has the "flow" of music changed from times past to now? What will it be in the future?
5 What is deliberate disorganization?
6 What is the latest electronic device for creating music?

V Objectives (The student will be able to . . . .)

1 Identify the latest practices of composers.
2 Define electronic music.
3 Identify the behavior of those who attend contemporary rock concerts.
4 Describe how the behavior of contemporary musicians and participants in contemporary music reflects contemporary society.
5 Identify blends of traditional and new music forms.

VI Project and Activity Questions

1 How can the "universal" appeal of contemporary music and music of the future be of benefit to society?
2 How does rock music reflect revolutionary social aspects?
3 Why were the Beatles so dominant in developing new music and setting trends for music in the future?
4 Why is sound awareness so important to human and nonhuman life?

VI Project and Activity Questions (continued)

5 What are the survival techniques of current rock musicians?
6 How does radio influence behavior of today's youth?
7 Why is today's musician more concerned with process than object?
8 How and why is audience behavior changing?
9 What forms of music deal with "deliberate disorganization?" Why?
10 What do home synthesizers mean to the future of music?
11 How is music a "spiritual trip?"
12 How does biofeedback music demonstrate how the knowledge of arts and sciences are produced consciously?
13 Why would a device "to check out your head" be of benefit to future society? Or would it be of benefit to society?
14 How is what biofeedback musician David Rosenboom says in "MUSIC: The Electronic Edge" different from what he says in "BIOFEEDBACK"?
15 How is tribal world culture related to contemporary music and the music of the future?

VII Resources

Paul Farnsworth, Social Psychology of Music, Iowa State University Press, Ames, IA., 1969.

Emil Gutkeil, Music and Your Emotions, Liveright, N.Y., 1970.

Frank S. Howes, Man, Mind and Music, Scholarly Press, St. Clair Shores, MI., 1948 (Reprint).

"New Music," *Hi Fi*, 1974 Series.

"Electronic Music," *Popular Electronics*, August, 1975.

"Inter muse," *Hi Fi*, June, 1976.

Rolling Stone Magazine.

Movies and albums by the Beatles, Elvis Presley, Rolling Stones ("Gimme Shelter," "Woodstock").

VIII Citizen Action

1 Students with composition skills can write and record music.
2 Arrange or attend concerts.
3 Transcribe rock operas for class study and interpretation.
4 Arrange a synthesizer demonstration. Consult a music teacher.
5 Display musical instruments. Stress variety.
6 Listen to rock groups Emerson, Lake and Palmer and The Who, which perform synthesizer music.
7 Contact radio stations for fieldtrips or invite disc jockeys to the class for a discussion.
8 View or develop a slide-tape presentation of how contemporary issues are reflected in music.
9 Tape radio broadcasts and analyze how they reflect "data music."

RELIGION: Making the Scene

Subject Areas: Future Studies, Religion, Sociology

I Content Summary

Young people today seem to be reversing a recent trend by coming back in large numbers to the old traditional kinds of religion, with their total devotion to God and the words of the Bible. Now, the church must constantly review its role in a changing world, in trying to offer a more relevant spiritual service. Prominent Catholic author and critic Michael Novak states his belief that people still have much locked inside them that they would like to let out, and that the Church must find ways to help them do it. William Stock, a former priest, discusses the different lifestyles of the clergy and those they serve, and wonders if those who have never known true intimacy with another human being can really understand the laity. The film discusses Eastern philosophies and their appeal to the young, and covers ways in which religion has helped drug addicts kick their habits. Harvey Cox, author of The Secular City, comments on the ever-present hunger for what people usually call God, and how it is reappearing among the young.

II Cognitive Organizer

Suggest that students attend a religious service of their choice and specifically observe the major parts, such as the ritual, the sermon and the congregation. Have them describe their experiences during a classroom session before watching the film. After the film, ask them if the film seems to be futuristic or propagandistic.

III Terms

deluge
impermanence
transcendence
power and subliminity
hermetically packaged world
comprehensive picture
prophylactic world
optional celebacy
ecstacy
intimacy
life of quiet desperation
Yoga
Java Mantra
mysticism
theology
alternative lifestyle
Jesus People
Harvey Cox
"reach out"
science of practical techniques
Hari Krishna
self-discipline

IV Key Questions

1. How is the function in society of religion and religious institutions today different from that of fifty years ago? Why?
2. How will this function change in the future? Or will it?
3. What do the traditional forms of Western religion have in common with the more recently introduced forms (Eastern meditation techniques, for example)?
4. Do you think Eastern religions will gain popularity in the West? Why or why not?

V Objectives (The student will be able to . . . .)

1. Recognize the significance of religion and religious institutions in American culture.
2. Determine the differences between the "old" religious values and the "new" values.
3. Identify the characteristics of Eastern religions and their philosophical bases.
4. Explain the attraction of Eastern religions for the people of the West today.

VI Project and Activity Questions

1. What is the religious make-up of your community? What influence does it have on moral standards?
2. What do you think are the changing priorities of a priest before and after his experiences as a priest?
3. Is the direction of evolution of religion toward a "people" orientation?
4. Do you believe in the statement "yoga is a ecumenical trend"? Why or why not?
5. Can you explain the attraction of the Hari Krishna groups?

VII Resources

Harvey Coe, The Secular City, MacMillan and Co., New York, 1966.

Donald Fabon, Dimensions of Change, Glencoe Press, Beverly Hills, California, 1971.

_____, Dynamics of Change, Prentice-Hall, New York, 1969.

Andrew M. Greeley, Religion in the Year 2000, Sheed and Ward, New York, 1969.

Paolo Soleri, The Bridge Between Matter and Spirit: Matter Becoming Spirit, Anchor Books (Doubleday), Garden City, New York, 1973.

VIII Citizen Action

1 Invite local ministers to visit the classroom for a discussion about the possible influence of the Eastern religious movement in the United States.
2 Conduct a survey in your community about the concept of freedom of religion and the constitutional concern for separation of church and state.
3 Research contemporary religious trends of American society, relating concern with religion to awareness of social problems. Use the information to predict the form and direction religion may take in the next century.
4 Examine five beliefs of the Judeo-Christian Tradition and suggest how they may have affected contemporary social environment both positively and negatively.

THE HUMAN POTENTIAL MOVEMENT: Journey to the Center of the Self

This lesson is not available by broadcast because it contains nudity and/or violence. It is available on a free loan basis from the Nebraska Department of Education ITV Services in video cassette format. If another format is needed, send your videotape and purchse order for $29.50 (the cost for dubbing onto your tape) to NDE ITV.

Subject Areas: Future Studies, Psychology

I Content Summary

A decade ago the Human Potential Movement was vitually unknown. Today the movement has become a business, a means of recreation, a form of theater, a philosophy of education, a guide for institutional development, an underground religion and a grass roots phenomenon attracting hundreds of thousands of people. This film examines just what the movement is all about, its direction and its possibilities. Dr. William Shutz, psychologist, author, teacher and co-founder of the Esalen Institute explains the principles of the movement which stress openness and trust. The development of a six-hour encounter group session which aims to help its participants become "totally integrated human beings" is visited from time to time. The individuals who met as strangers develop as a group. Others seeking self-knowledge through the spiritual discipline of meditation and yoga and group members demonstrating techniques for the release of aggression are observed. The film explores the reality of Dr. Willis Harman's view that if people can bring together the potential of human technology, there may be possible a world "such as the utopian philosophers could only dream about."

II Cognitive Organizer

Trust Fall. In groups of seven or eight persons form a tight circle, shoulder to shoulder. Each member of the group in turn stands in the center and falls into the other members who gently pass that center individual around to one another. After several revolutions of the center person and after a sense of trust has developed, another person in the group will become the center individual until all members have been in the center. A discussion of trust and human physical contact as a way to develop trust should follow.

III Terms

untapped natural resource
trust-fall
mysticism
transcendental meditation
feel, touch, trust
Puritan Ethic
grass roots phenomena
responsibility
yoga
encounter groups
political potential
honesty
physical presence
confrontation
transferring energy
dyad

IV Key Questions

1 The human potential phenomena has recognized used in several areas of society. What are these areas?
2 What is the rationale behind the Human Potential Movement?
3 What elements, two from Western culture and one from Eastern culture, combine to form the human potential phenomena?
4 What is the purpose of an encounter group?
5 What are the three principles of the Human Potential Movement?
6 What do the critics feel the Human Potential Movement lacks?

V Objectives (The student will be able to . . . .)

1 Define the Human Potential Movement in terms of current phenomena.
2 List the three principle elements of the movement.
3 Identify and list the critics' reasons for concern about the movement.

VI Project and Activity Questions

1 What is self responsibility?
2 Do people express human potential in everyday life? If so, how?
3 Why do people need to release aggresions before they can realize their human potential?

VI Project and Activty Questions (continued)

4 How would nudity help individuals overcome sexual inhibitions?
5 Why are the spiritual disciplines of TM and yoga important to the development of the Human Potential Movement?
6 Why are the critics concerned about creation of causalities in the Human Potential Movement? Are the causalities really society's causalities?
7 Why is conscious awareness of body and feelings so important to human potential?
8 Is the Human Potential Movement's idea of energy transfer close to anything that occurs with biofeedback?
9 What would be the impact of political or international trust if the persons involved were to go through an encounter session before discussing issues?
10 Do students feel that human potential leads an individual to become an authentic and fully functioning human being?
11 What will recognition of human potential do for one's sense of being? On the job? At school? In the community? For one's sense of humor?
12 Who uses human potential movement elements in your community? Churches? Businesses? Schools?

VII Resources

Eric Berne, Games People Play, Ballentine Books, N.Y., 1974.

Adelaide Bry, Erhard Seminars Training, Avon Books, N.Y., 1976.

William Glasser, Reality Therapy, Harper and Row, N.Y., 1965.

_____, School's Without Failure, Harper and Row, N.Y., 1969.

Thomas Harris, I'm Ok, You're Ok, Avon Books, N.Y., 1969.

James and Jonyeward, Born to Win: Transactional Analysis with Gestalt Experiences, Addison Wesley, Reading, MA., 1971.

Abraham Maslow, Toward a Psychology of Being, Van Nostrand, Cincinnatti, Ohio, 1968.

Simon, Howe, Kerschbaum, Values Clarification: A Handbook for Teachers and Students, Harcourt, N.Y., 1972.

Alvin Toffler, Future Shock, Chapter, 16, "The Psychological Dimension," Bantam Books, N.Y., 1971.

"I'm Ok, You're Probably Ok," *Newsweek*, Oct. 13, 1975.

"We Are Going to Tear You Down and Put You Back Together Again," *Psychology Today*, August, 1975.

VIII Citizen Action

1 Investigate those institutions (churches, civic centers, adult education, clinics) and individuals that may use Human Potential Movement concepts. Ask for a panel of participants to discuss the movement with your class.
2 Join a TM group.
3 Investigate or participate in an encounter or sensitivity or consciousness raising group.
4 Ask guidance counselors about counseling experience, their education and resources.
5 Start a peer counseling group in your school or community. Investigate Positive Peer Culture Training.

CHILE CON CARDIN: Morality + Design = Elegance

Subject Areas: Future Studies, Art, Urban Studies, Home Economics

I Content Summary

Pierre Cardin began his design career as a couturier in high-fashion Paris. He then created "ready-to-wear" clothing, bringing about the "democratization" of fashion. Now he is creating a future environment. The French press has coined the word "Encardinise," to refer to the environment under Cardin's spell. This is a coordinated design, beginning with the costume and reaching all the accessories of life -- sheets, table ware, towels, dolls, watches, perfume, scarves, children's clothing, baby carriages, records, ceramics, Expresso coffee machines.

Cardin, in considering the future, envisions more freedom in clothing as well as work. He believes the main focus will be pleasure. To further his goal of creating a cohesively designed environment, Cardin has recently purchased buildings on the Champs Elysees in Paris in which he is designing gardens, galleries, theaters and restaurants.

II Cognitive Organizer

1 Bring to class (or invite students to) an item of fad fashion (geometric hose, hully gully boots, double-breasted suit, bow tie). Demonstrate the item or items and discuss the statement "Fashion is ridiculous, before and after it is in."
2 What does the item represent? What purpose did it serve? Was it an expression of the culture of its time? Was it utilitarian?
3 Ask students what predictions they have for fashion in the next five years, 10 years and 25 years. A chart listing various items of wearing apparel could be made for these predictions. Some students may want to design future clothing or furniture as a project.

III Terms

Pierre Cardin
Les space
traditional clothes
elegant, elegance
coordinated design
creative frame of mind
total environmental design
architect of dress
courturier
ready-to-wear
Champs Elysees
Paris -- capital of fashion
supple costumes
perpetual renewal
adorn and embellish
utilitarian
personalized dummies
haute couturier
Encardinese
universal appeal
incessant change

IV Key Questions

1 How is the equation, "Morality + Design = Elegance," appropriate to the title of this film?
2 Why is Pierre Cardin considered so controversial a designer by his fellow couturiers?
3 What predictions does Cardin have for the future of fashion and what will be considered fashionable in the future?
4 "Encardinese" is a verb. Why does it represent action?
5 What are some of Cardin's philosophies about design, environment and a creative frame of mind?

V Objectives (The student will be able to . . . .)

1 Identify aspects of Cardin's work that have influenced modern life.
2 Describe Cardin's philosophies.
3 List Cardin's predictions for the future of fashions.
4 Identify reasons for the strong appeal fashion has for the general public.
5 Identify conflicting philosophies about fashion.

VI Project and Activity Questions

1 Is it possible for an environment to change at the same rate fashions do? Does it? Would it be practical?
2 What effects would a constantly changing environment have psychologically? Politically? Economically?
3 Do areas that maintain traditional dress in their everyday activities also have static environment?

VI Project and Activity Questions (continued)

4 What advantages and disadvantages would a homogeneously designed environment have?
5 Pierre Cardin represents only one person in the fashion industry. Does he reflect the attitudes of all fashion designers?
6 Is fashion influenced by the society it is a part of or vice-versa?
7 How are fashions of today determined?
8 With blue jeans and T-shirts becoming the epitome of fashion, even with the jet set, is it safe to say that fashion is going contrary to Cardin's prediction and becomine highly utilitarian?
9 Cardin believes in the future that clothing will only serve as a second skin, as an adornment or embellishment of the naked body; is this a new concept or a primitive one? Has his prediction already occurred?
10 What are your predictions for fashion of the future?

VII Resources

"Fashion Influentials," *Harper's Bazaar*, March, 1972.

"Pierre Cardin Goes Industrial," *Business Week*, Feb. 5, 1972.

"Pierre Cardin's Grand Design," *Newsweek*, July 24, 1972.

VIII Citizen Action

1 Invite home economics teachers to discuss the history of costume. Perhaps someone in theatre would have helpful insights in the area of costume, too.
2 Consult with local merchants who handle dress and furniture fashions. Have these merchants discuss their merchandising techniques, trends in their business and commercial appeals.
3 Design a personal wardrobe and/or living space and furniture. Explain what it represents. Is it environmental? Is it utilitarian or not? Why or why not?
4 Create a fashion index, using old fashion magazines and catalogs. Keep it updated.

SCULPTURE: Kitsch, Catch or Creative Space

Subject Areas: Futute Studies, Art

I Content Summary

Traditionally sculpture has been an art form which dealt with the distribution of weight and mass in a field of space. This film suggests that sculpture of the future will experiment with a great variety of images and abstractions and thereby readjust people's ideas about sculpture. Some works will be outside the gallery walls and be of such size that only the natural setting can accomodate them. Others will be transitory, such as performances of music or drama, and use the human figure as a performance of body art. Still others will be spectacular interactions between nature and technically developed materials. Patrons may say such works mold the world into a sphere and help humankind understand.

II Cognitive Organizer

1 Show a picture or an example of modern abstract sculpture (consult with an art teacher). Present it to students to stimulate thoughts about what new art forms represent.
2 Have students evaluate the art in 1 either in discussion or on a rating sheet. What does it mean? Does it say something to the students? Why or why not? Is it functional? What is its purpose? Artistic terms (texture, color, depth) could be listed for students to rate on the rating sheet. Various types of continuums could be chosen for the rating.
3 Have students design and create mobiles. Have them state rationale for their sculpture.

III Terms

personal expression
ignored oblique
patronage
statutory
jetty
earth sculpture
originality
wasteful and incomprehensible
weight/mass
adjustment of space
gallery
alternative art
dimensional art
arbitrary boundaries
body art

IV Key Questions

1 The statement is made in the film that "sculpture is dead." Why was the statement made and does it have a grain of truth?
2 Sculptors today no longer are doing statutory sculpture. Instead they are moving into new realms of sculptural expression. What are some of these new forms?
3 What are some of the new media of expression of these new art forms?
4 Why is patronage so important to art?
5 What are some of the major criticism of new art, in particular, sculpture?

V Objectives (The student will be able to . . . .)

1 List some of the new sculpture art forms.
2 Define patronage.
3 Describe the major criticisms of new sculptural art.
4 Identify new media of sculptural expression.

VI Project and Activity Questions

1 Patrons have been the source of the sculptor's income for many years. Should there be a citizen's effort to support local artists in their quest to develop new art? Are there such citizen's groups? Where? Do they influence the artists' creativity?
2 The film states, "The artist's job is to mold the world to his view." Do students believe this can be done? Or, is the artist only mirroring what goes on in the world around him?
3 What are some of the new methods of sculptural creation? Are they effective?
4 How would students contribute to the world of sculpture?

Project and Activity Questions (continued)

5 Environmental sculpture has become part of the avant-garde community. Does it seek to help people understand the environment. Has sculpture of the past assisted communities in understanding their environment?
6 As sculpture of the past was created and introduced, the people of the times rejected it. Do current art forms reflect contemporary thought? Is that why many art works are rejected?

VII Resources

Jean Selz, Modern Sculpture: Origin and Evolution, Braziller, Inc., N. Y., 1974.

Reginald Wilenski, Meaning of Modern Sculpture, Beacon Press, Boston, MA, 1961.

"Flowering of American Sculpture," *Art News*, December, 1975.

"Great American Ideas: Sculpture Out in the Open," *House and Garden*, December, 1974.

Citizen Action

1 Ask the school's art teacher for a short history lesson on the evolution of sculpture.
2 Visit local monuments of sculpture and nearby galleries.
3 Assemble a slide presentation of modern sculpture.
4 Research new art forms and the philosophies for their creation.
5 Investigate the controversy that occurred over the Interstate 80 Bicentennial sculptures in Nebraska. Look at the cultural gap.
6 Interview people who are viewing sculpture at galleries or local sites.

UNIVERSITIES: Tearing Down the Ivy

Subject Areas: Future Studies, Education

I Content Summary

The day of the Ivory Tower is ending. No longer can the university isolate itself from the mainstream of society outside its walls. Kenneth Kenniston, author of The Committed Young Radicals is a professor at Yale University Medical School. Interviewed on the film, he speaks of encouraging students to challenge traditional ideas. Also interviewed are Professors Tom Thompson and Mike Murphy, who try to bring their classes closer to the world outside. "Floating" universities, which insist that their students actually go to the places they are studying, are explored; this new form of academe already is changing education.

II Cognitive Organizer

Direct a session in planning future education. Have students write out some general goals and then plan a course of study with the freedom of writing and creating courses and course descriptions to fit their need. Include a description of how the learning is to be evaluated by schools, teachers, employers, etc.

III Terms

floating universities
temporary classrooms
computer-assisted instruction
international university
community college
privileged minority class
student movement
adaptable
Ivory Tower
critical thinking
student activism
ruling class
value change
social change
in loco parentis
abstract
philosophical
interdisciplinary

IV Key Questions

1 In what way do you think educational institutions and their techniques will have to change in the future? What improvements might be made?
2 What are Professors Kenneth Kenniston, Mike Murphy and Tom Thompson doing to change traditional university education?
3 How has technology had an impact on the university and changing patterns of education?
4 In what ways have universities and their students changed in the past few years?

V Objectives (The student should be able to . . . .)

1 Identify at least two factors contributing to the activist education movement.
2 Describe the atmosphere of a college or university which seems to be responding to student needs.
3 Relate their own perception of college to classmates in such a way as to indicate agreement or disagreement with the message in the film.

VI Project and Activity Questions

1 A few years ago universities and their students were considered subversive by many people, as Kenneth Kenniston points out in the film. Why?
2 Who "owns" your State University? What is its role in society? Do private colleges maintain different status?
3 What is the prediction of Kenneth Kenniston regarding future societies who have experienced university education?
4 What different types of educational needs will you have after high school?
5 Many predictions for future employment identify at least five job changes for each persor during their earning years. What does this mean in terms of education for you, your family and your friends?
6 Did the educational atmosphere appeal to you that was identified in the film (floating university, Macabe Project at Green Bay, Wisconsin, or Hampshire College?)
7 Is college for everyone?

VII Resources

Buckminister Fuller, Education Automation, Doubleday, Garden City, New York, 1971.

Ivan Ilich, DeSchooling Society.

Kenneth Kenniston, The Uncommitted: Alienated American Youth, Harcourt Brace, New York, 1965.

Postman and Weingartiner, Soft Revolution, The School Book and Teaching as Subversive Activity.

Alvin Toffler, Learning for Tomorrow: Role of Future in Education, Random House, New York, 1974.

"Education Series," *Saturday Review*, 1971 - 1973.

"Cipher in the Snow," film from the University of Nebraska-Lincoln.

VIII Citizen Action

1 Investigate the governance and structure of a school district, college or university near you. Determine what decisions are left to students and those which are left to trustees, presidents, departments, teachers. What are the "big issues" today in any of these schools?
2 How is the university financed if it is "public"? "Private"?

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HABITAT 2000: Human Scale Cities

Subject Areas: Future Studies, Sociology, Architecture, Urban Studies

I Content Summary

One reaction to the concept of "megabuildings" is human-scale cities designed for people, not just for function. In many cities, tall buildings tower overhead, cutting the sun, emphasizing the coldness of strangers trapped together amidst the concrete and the glass and the steel. Designers now are facing this problem and trying to build structures for people rather than solely for business. Moshe Safdie, originator of Habitat '67, is now taking the habitat concept all over the world. He claims that "there's a loss of human scale, a loss of a sense of privacy and decency." He feels that these values must be recovered and incorporated in the city of the future.

Christopher Alexander, planner from the School of Environmental Design in Berkeley, California, and coauthor of Community and Privacy, also is featured. He believes that a major problem of architecture today is that people are forced to accept whatever the builder hands them. In the future, he would like to see people with the capacity to design their own houses using what he calls "pattern language." Paolo Soleri, an architect and urban prophet who is doing some very interesting work in Acrosanti, Arizona, also expresses his views on buildings for cities of the future.

II Cognitive Organizer

1 Examine a home, school or other building floor plan. Discuss the priorities used to design it.
2 Several newspapers include floor plans of houses, especially Sunday editions. Are they human scale?
3 Build a chart of "needs" in a habitat. What has greatest priority?

III Terms

alternative future
multitude skyscraper
megabuilding
habitat
agrarian
super cities
vernacular architecture
pseudo-scientific
neutralizing people
environmental bill of rights
urbanity
collective unconscious
urban cliff
futuristic cities
utility and function vs. beauty and space
futuristic
today
continuous building
human scale
Frank Lloyd Wright
Buckminster Fuller

IV Key Questions

1 Buckminster Fuller is quoted in the film as saying, "Man's first really modern house will be built on the moon. Meanwhile, on earth, we remain products of all that has gone on before." Do students see this in their community?
2 How might future cities be designed and planned to take human scale into consideration?
3 Where did the concept "big is better" come from?
4 If students were to design their own homes, how would the homes be unique?
5 What rights of the individual are rationalized away for conformity to architectural patterns? Relate this to an environmental bill of rights.

V Objectives (The student will be able to . . . .)

1 Recognize architecture which is human scale and contrast it with that which is not.
2 State two reasons supporting human scale buildings.

VI Project and Activity Questions

1 What does the term "human scale" mean and what is its importance to architecture?
2 What alternatives to current architecture exist in ever-crowded urban areas?
3 How did the goals of city planners, developers and architects of Jerusalem differ from those of New York City?
4 What are the basic values that humans seek in their environment?
5 What has population growth contributed to city development?

VII Resources

Christopher Alexander, Community and Privacy, Doubleday, Garden City, New York, 1963.

Cities, a Scientific American Book, W. H. Freeman, San Francisco, California, 1973.

George McCue, Creating the Human Environment, University of Illinois Press, Urbana, Illinois, 1971.

Frank Lloyd Wright, The Natural House, New American Library, New York, 1960.

Scale models of a variety of buildings designed in college and university architectural engineering departments.

VIII Citizen Action

1 Consult the local planning commission or zoning board to determine how building codes are established.
2 Interview the people who work in a local (government, business or professional) building and ask them if they were consulted during the planning of the existing facility. Ask about their attitudes about working in such buildings. (Architects admit that this is seldom done.)
3 Assign students to construct a slide series of the architectural variation in your city or town. Relate specific building designs to cultural heritage.

HONG KONG: The Edge of the West

Subject Areas: Future Studies, Political Science, Geography

I Content Summary

Hong Kong is in a unique position; it is a free city living on the edge of Communist China. This film examines this highly industrial, extremely crowded and thoroughly Chinese city. The shiu sheung yan, sea gypsies who fish off family junks, seldom setting foot on land, are featured. But their numbers are diminishing because big trawlers have begun working the fishing grounds.

Land in Hong Kong is valuable and the population density is as high as 200,000 persons a square mile. Cramped conditions and rooftop schools are all part of a daily existence. But Hong Kong is thriving economically and this film is an excellent introduction to the city, its people and its society.

II Cognitive Organizer

Conduct an activity such as the one below to identify the population density of Hong Kong:

Hong Kong has approximately 30 times the population per square mile as urban Los Angeles. Mark off parts of the classroom as two 5′ x 6′ areas. Have one student stand in one area and 30 in the other. Tell them to remain in the areas for five to 10 minutes. Have one or two students exchange places from dense to sparse population. Ask them to respond to the difference in crowding after experiencing both settings.

III Terms

pragmatism
dissent
"rising expectations"
Pacific Rim
refugees
water people
Westernization
historical accident
June 30, 1997
"lose fact"

IV Key Questions

1 Why is Hong Kong important?
2 What could be the effect if Hong Kong becomes part of the Republic of China?
3 What kinds of activities are unique to the port of Hong Kong?
4 Are the overcrowding conditions in Hong Kong peculiar to that city?

V Objectives (The student will be able to . . . .)

1 Describe the style of living conditions in Hong Kong.
2 State the important aspects of this city to the Western world.
3 Predict the impact a shift in ownership would have on the city.
4 Demonstrate an understanding of the lifestyles in the city.

VI Project and Activity Questions

1 What is the motivation of the people who continue to move into cities?
2 What advantages would the People's Republic of China gain if it continued to lease the city?
3 How do the crowded conditions of the city affect its urban planning?
4 What influence has the city had on the history of the Pacific in the last 80 years?
5 If you were to visit Hong Kong, where would you like to stay or go within the city?

VII Resources

None.

VIII Citizen Action

1 Study the history of Hong Kong and try to describe the importance of the city's economy to the Pacific area.
2 Invite a visitor of Hong Kong to the classroom to show slides and describe the life of the city.
3 Research the two China nations (mainland and Taiwan) and their policies toward Hong Kong.

JERUSALEM IN THE YEAR 2000: The Future of the Past

Subject Areas: Future Studies, Urban Studies, Geography

I Content Summary

Must a revered city destroy its past in the name of progress? The city of Jerusalem is a modern city as well as an ancient one. It must meet the needs of citizens who live there, as well as the hordes of visitors who journey there each year. Urban developers are faced with a very real problem when they discover historically important ruins while, for instance, digging an underground parking lot.

Joining in the discussion of this extremely critical problem are Moshe Safdie, an internationally renowned architect and creator of a futuristic city model entitled "Habitat"; Y. Haezachi, the head of the Society for the Beautification of Jerusalem; a representative of the Urban Planning Unit; and a young couple who are looking for housing.

II Cognitive Organizer

Acquire a map of Jerusalem and identify the major historical features and sites of the city. Encourage students to relate to historical development of each of the identified areas so they can realize the siginificance of the history of the past. Ask them to do the same activity with their own community.

III Terms

"dialogue with history"
city planning
North American technology
urban sprawl
land investment
time and space relationship
Western values
urban planners
freeway system
process of decision making
developers
megalopolis
"future of the past"
congestion
time scale
walking city

IV Key Questions

1 In what ways are the problems of the city of Jerusalem unique?
2 Are there any similar problems for the cities of the United States?
3 Do students think the plans of Moshe Safdie could be adapted to your city or local community?
4 What do students think will be the future for the city of Jerusalem?

V Objectives (The student will be able to . . . .)

1 Describe the major characteristics of Jerusalem which make it historically unique.
2 Recognize the problems presented by Western technology as they affect the city.
3 Identify the "human shape" concept as it relates to the thinking of Moshe Safdie.
4 Apply the concept of "citizen participation" to the urban plan for the city.

VI Project and Activity Questions

1 What are the major demands on the city for change? For any city?
2 What are some of the factors which affect change in your city?
3 What aspects of Western technology make it possible to have a higher standard of living?
4 What examples can students provide to justify the resistance to change by the public and preservation of old values for any city?

VII Resources

Jay Forrester, Urban Dynamics, M.I.T., Cambridge, 1969.

Refer to Habitat 2000 resources.

VIII Citizen Action

1 Prepare a list of values which are unique to your community in the architecture of the buildings and roads which students consider "sacred" beyond destruction.
2 Design a series of pictures which show the uniqueness of major cities of North America which have been preserved despite demands to advance technologically. (New Orleans)
3 Develop a "plan" to include all the citizens of your community in the design of their community. Show it to the city council and interested persons and have them critique it.
4 Invite an urban planner to the classroom to provide ideas for the future growth of your city. See if the city plan is preserving basic human scale values.

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FLYING: From Here to Infinity

Subject Areas: Future Studies, Technology, Vocational Training

I Content Summary

In the next few decades two paths of development in flying are likely -- bigger planes able to fly passengers across the Atlantic for $50, and faster and considerably more expensive supersonic transports. To solve the problem of lengthy runways some planes will use vertical take-off and landing. The British built Hawker-Harrier plane is a jet which can land and take off vertically and hover and fly backwards like a helicopter, but it's just a forerunner of the passenger craft of the future.

Jim Crang, designer of the floating concrete airport, explains his theory that future airports servicing supersonic transports and giant jumbo jets will dramatically curtail pollution and noise over large urban centers. Aviation authority Dr. Robert Jastrow, chief of the Goddard Space Institute, talks about the current century. He speculates about the type of vehicles humans will use in travel to the stars. He lists some possible methods for conquering the vastness of time and space such as deep-freezing travelers, attempting to build a craft that could travel at the speed of light, or possibly building the equiva' nt of a space arc. This latter concept calls for up to 5,000 men and women to set out on a journey they will never complete; only their distant descendants born and educated in deep space will complete their mission.

II Cognitive Organizer

In pairs or small groups have students design and make paper airplanes. Test the planes in an air show. Devise a rating sheet and deal with durability, design and potential for the future.

III Terms

subspeciation
progeny
selective breeding
suborbital rockets
subhuman beings
homo sapiens
solar system
stratified society
echo readings
Mach 2
Jet Set
modular travel
air buses
anti-gravity
Concorde
floating airport

IV Key Questions

1 What uses, other than transportation, might there be for flying?
2 In what ways might current types of jets be changed or redesigned in order to accommodate new uses?
3 How could helicopters be used to alleviate the transportation problem in cities?
4 How will airports change?
5 What new issues are raised for consideration as a result of the promotion of space travel?

V Objectives (The student will be able to . . . .)

1 Recognize possible new advancements related to flying.
2 Describe the scientific problems which must be solved before humans travel to outer space.
3 Analyze the advantages and disadvantages of building new airports on water.
4 Identify the ethical difficulties which face humankind as it prepares for space flying.

VI Project and Activity Questions

1 What might "life" in this solar system for the next 300 million years be like?
2 The phrase "Golden Age of Mankind" is interesting. What will be the axiom to describe life on earth before humans move to other planets?
3 What is the ultimate for speed and efficiency of air travel?
4 Would floating airports be more practical and effective than those on land? Why or why not?
5 What are the methods devised for building floating airports?
6 What is the cost factor of going to outer space? (Energy, raw materials, mass transportation)

VII Resources

John G. Burke (ed.), The New Technology and Human Values, Wadsworth Publishing, Inc., Belmont, California, 1966.

Dennis Gabor, Innovations: Scientific, Technological and Social, Oxford University Press, New York, 1970.

_____ , Inventing the Future, Alfred A. Knopf, New York, 1964.

Flying and Popular Science magazines.

VIII Citizen Action

1 Research the evolution necessary to achieve space travel.
2 Develop a timeline for life in this solar system and beyond for the next 100,000 years.
3 Visit a local airport and talk to the officials about new flying innovations.
4 Write the Civilian Aeronautics Board for information about future airports.

MOBILITY: Life As a Nomad

Subject Areas: Future Studies, Sociology

This lesson is not available by broadcast because it contains nudity and/or violence. It is available on a free loan basis from the Nebraska Department of Education ITV Services in video cassette format. If another format is needed, send your videotape and purchase order for $29.50 (the cost for dubbing onto your tape) to NDE ITV.

I Content Summary

Every year one in five North Americans changes addresses. Travelling and trips have become a part of life. Elizabeth Fehr, a New york psychologist and therapist, helps a group re-enact the original trip, not from home to home but down the birth canal. She believes this is the first move encountered in life and by reliving this experience people are made free from the past.

Tent cities are another instance of people on the move. Vance Packard, journalist, sociologist, social critic and author of seven books including Nation of Strangers, discusses North American nomads. Also included in this study of mobility are New York subway commuters, automobile users and the most important vagabonds of today, the astronauts.

II Cognitive Organizer

Have each student explain the reasons for his/her last vacation trip either alone or with parents. They should include in their explanation reactions of persons they came in contact with during the experience. At the conclusion of the activity, ask, "Do you consider yourself a nomad or a native in this land?"

III Terms

psychological nomads
mobile homes
re-birth therapy
Vance Packard
tent cities
sub-cultures
"Yesterday" by the Beatles
birth trauma
suppression
immobile mobile
alternative lifestyle
social mobility
tolerate ambiguity
introspection
self-analysis
morality
loneliness
new nomad
permanent state of flux
status quo
romantic dream

IV Key Questions

1 What are some of the physical landscape and transportation changes which have occurred because of the "new mobility"?
2 What are some of the social behaviors unique to the "new nomads"?
3 What do you think justifies the taking of "trips" (either psychological or physical) for those who do so?
4 What kinds of activities do those who reject present society attend which shows they want something different or better?
5 Is seeking adventure unique to Americans?

V Objectives (The student will be able to . . . .)

1 Identify the characteristics of the new nomads.
2 List reasons for "re-birth therapy."
3 Draw conclusions about the needs that people who take re-birth trips may have.
4 Compare the psychological and physical trips which are described in the film.

VI Project and Activity Questions

1 What is the relationship between the search for inner lifestyle and "wheel nomads"?
2 Why are people "searching" so much in today's society?
3 What are some characteristics of a psychological nomad?
4 Is it possible to "ban the auto" from a downtown section of a major city? Why or why not?
5 What models are new alternative lifestyles providing for the future?
6 Can students expect "nude communes" to provide any lessons for their patterns of living? If so, what? Explain.
7 What other cultures have nomads? Are they "on the move" for the same reasons? Explain.
8 Does the *status quo* encourage citizens to be "on the move"?

VII Resources

Daniel Bell, The Coming of Post-Industrial Society: A Venture in Social Forecasting, Basic Books, New York, 1973.

Wendell Bell and James A. Mau (eds.), The Sociology of the Future, Bossell Sage Foundation, 1971.

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Peter F. Drucker, The Age of Discontinuity, Harper and Row, New York, 1969.

R. Buckminister Fuller, Buckminister Fuller to Children of Earth, Doubleday and Co., Inc., Garden City, N.Y., 1972.

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Robert Houriet, Getting Back Together, Coward, McCann and Geoghegan, Inc., New York, 1971.

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John Shuttleworth, The Mother Earth News Almanac, Bantam Books, New York, 1973.

_____, The Mother Earth News Handbook of Homemade Power, Bantam Books, New York, 1974.

Robert Theobald, The Economics of Abundance, Pitman Publishing Corporation, New York, 1970.

Alvin Toffler, Future Shock, Bantam Books, New York, 1971.

VIII Citizen Action

1 Invite some members of the community who have witnessed or had the experience of living in tents and mobile homes to explain their attitudes.
2 Research the new nomads by reading periodicals which attempt to explain their reasoning, and report to the class.
3 Investigate the ordinances and tax laws of the local community which may reflect the attitudes toward people "on the move."
4 Survey the community on the number of people who take vacations which are similar to those of the "new nomads."
5 Investigate "gypsy populations" as they exist in the United States.

UNIT: Eco Future

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EARTH: No Vacancy

Subject Areas: Future Studies, Geography, Ecology

I Content Summary

Natural resources are declining but population is increasing. Dennis Meadows, an engineer and coauthor of Limits to Growth, discusses this situaiton. He has developed a world computer model to estimate what could happen in the next 100 years and his findings are frightening. Efforts to stabilize conditions require adherence to zero population growth (ZPG). The aim is to bring families down to a two-child average, so that the next generation will only replace those already born. People like Judy Senderrowitz are using friendly persuasion in an attempt to promote the concept of ZPG, but it is possible that in the future world governments might impose regulations if population growth continues uncontrolled. One possible answer is the commune movement.

II Cognitive Organizer

1 Have students estimate the population of bacteria growing in a culture dish with one organism starting at 8 a.m. and doubling every 20 minutes for 24 hours. (Summarize the variation in estimates in class by writing them on the blackboard or overhead projector.)
2 Calculate the answer to the problem above. Repeat for a two-day growth period.
3 If sterile agar plates are available, innoculate one with a pure culture of a non-pathogen and note the size of the culture(s) during the growth period.

III Terms

ZPG
exponential growth
limits to growth
natural resources
barefoot-pregnant syndrome
trade-off
accommodation in values
growth ethic
shock value
personal freedom
computer simulation
greenhouse effect
commune movement
spiritual first cause
crisis
support systems
stable growth
overshoot
abortion
social order
Paul Ehrlich

IV Key Questions

1 What would be the possible consequences of unlimited population growth?
2 Why is the stress on finite resources increasing at such great rate in the 1970s compared to the 1900s and earlier periods?
3 Identify the trade-offs which must be made if the growth of population is to be stable and resource use is to remain manageable.
4 What is zero population growth? How are the rates of births and deaths related?
5 Can students identify symptoms of problems related to population in the United States?
6 What is the environmental meaning of "do a lot with a little."

V Objectives (The student will be able to . . . .)

1 Identify data which differentiates people of varying birth rates and consumption rates.
2 List at least four indicators of environmental stress.
3 State the two general options within the realm of population control which society can choose.
4 Calculate growth rate, net increase and doubling time given appropriate data.
5 List five specific natural resources and discuss the expansion potential of each.
6 Identify religious, social, economic and political factors which have a) hindered population control and b) stimulated population control.

VI Project and Activity Questions

1 Which countries have already experienced severe consequences of food supply shortage, population imbalance and/or crowding?
2 Does the North American breadbasket have an obligation to feed the underdeveloped nations under any and all circumstances?

Project and Activity Questions (continued)

3 What consequences of the present trend in growth does Meadows see in the next few decades?
4 Are there more difficulties in reaching ZPG for technologically advanced countries like the U.S. than for those less advanced like India? How will this vary?
5 What do students think of governmental regulation of population through changing the tax system, genetic counseling and permits for child rearing?
6 What recent Supreme Court decisions have dealt with population control and the rights of individuals?

VII Resources

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Paul Ehrlich, Population Bomb, Sierra Club-Ballantine Books, New York, 1968.

_____, The End of Affluence, Ballantine Books, New York, 1974.

Population, Evolution and Birth Control, assembled by Garrett Hardin, W.H. Freeman and Co., San Francisco, 1969.

"The Human Population," *Scientific American*, September, 1974 issue (11 articles).

Man and the Ecosphere, a Scientific American Book, W.H. Freeman, San Francisco, 1971.

"Tragedy of the Commons," 16 mm film, available from Lincoln Public Schools, Lincoln, NE.

VIII Citizen Action

1 Contact a local or state ZPG organization and investigate how the organization works to effect its goals. Do the same for a Right to Life organization.
2 Inquire into the nature of resource supply problems in the local area -- power, food, transportation. Do they occur because of population excess or lack at the regional level? What is the population growth rate in the local area?

ENERGY: Toward the Age of Abundance

Subject Areas: Future Studies, Ecology, Social Studies, Physical Sciences

I Content Summary

One fifth of the world's population, in Japan, Europe and North America, consumes more than 60 per cent of all the power on earth. In the next 10 years North America will consume more energy than it has in all its history. One of the answers to the dwindling supplies of coal, the traditional energy source, is nuclear fission. The U.S. has 62 nuclear plants under construction and it is estimated that by the turn of the century 1000 plants will be in operation throughout the continent.

The film interviews people who live close to a large nuclear station in New York state and who object to it because of thermal pollution, disposal of nuclear wastes, possible radiation hazards and other safety factors of such plants. Another critic of nuclear power generators is lawyer and author Robert Hallman who voices his concern about energy wastage and the next generation of nuclear power plants. Dr. Peter Glasser, high energy futurist, sees the eventual harnessing of the fusion reaction, the power of the hydrogen bomb, as a potential answer to the energy dilemma.

II Cognitive Organizer

Discuss "The time in between -- how to get through it?"

Most energy predictions include a conclusion that America will run out of fossil fuels by 1985 and will not be ready to use solar and fusion power until the year 2000. What should be done between 1985 and 2000 if conventional nuclear energy (fission) plants are prevented from expanding much further? How to prepare for it? Students might role play community leaders in a discussion.

III Terms

fossil fuel
kilowatt
factor of 5
energy gap
livingry vs. weaponry
standard of living
utopia vs. oblivion
futurist
laser
thermonuclear
microwaves
AEC
NUKES
emergency core
atomic waste
atomic bomb
monopoly
world trade center
nuclear proliferation
plutonium
solar collector
satellite
fuel cells
efficiency
hydrocarbon
emission test
turbine
per capita consumption
fast breeder
fission reactors
fusion reactors
solar cell
Californium

IV Objectives (The student will be able to . . . .)

1 Identify the general problem in energy resources for the next 30 years.
2 List at least four alternatives to fossil fuel energy systems.
3 State what "pollution free" energy systems are possible.
4 Give examples of wasteful energy systems in present transportation, housing or industry.
5 Identify positive (energy conserving) progress which has been made since EPA and other national efforts have been in existence.
6 Identify the messages in several ads concerned with energy consuming items (cars, appliances).

V Project and Activity Questions

1 Discuss Buckminister Fuller's choice of utopia or oblivion in the film.
2 Why is the standard of living such an important issue in looking at world resources, needs and population issues?
3 What errors seem to have been made in the design of buildings, automobiles and appliances when the limited resources of the planet are considered?

Project and Activity Questions (continued)

4 Why is solar energy technology such an attractive energy alternative at this time? What are its limitations?
5 What has been the success story of the Environmental Protection Agency?
6 Is the scare about nuclear power plants and their waste as real as is projected in the film?

VI Resources

Energy and Power, a Scientific American Book, W.H. Freeman Co., San Francisco, 1971.

Exploring Energy Choices, by Energy Policy Project, Ford Foundation, Washington, D.C., 1974.

Gary McCuen, The Ecology Controversy: Critical Issues Series Vol. III, Greenhaven Press Anoka, Minn., 1970.

Donella and Meadows, Limits to Growth, Universe Books, New York, 1972.

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Charles ReVelle, Sourcebook on the Environment, Houghton Mifflin Co., Boston, 1974.

"Energy Policies in the U.S.," *Scientific American*, January, 1974.

"Fusion Power by Laser Implosion," *Scientific American*, July, 1974.

"An Overview of the Energy Crisis," *Journal of Chemistry Education*, May, 1975.

"World Resources and the World Middle Class," *Scientific American*, July, 1976.

Lincoln Area Environmental Education Project, University of Nebraska-Lincoln.

Churchill Films has a series of films on energy: "Energy: The Dilemma," "Energy: The Nuclear Alternative," "Energy: New Sources," "Energy: Less is More."

VII Citizen Action

1 Research the progress in your local community in support of legislation affecting nuclear power plants or other energy producing projects. What priorities were involved on each of the sides in the issue?
2 What has been the progress in your area of Nebraska of the "Easy on Energy Project"?
3 Research the possibility of converting your school to solar energy.

ECOLOGY: The Silent Bomb

Subject Areas: Future Studies, Biology, Ecology

I Content Summary

In the near future a planner or designer will be able to feed into a computer the latest proposals for a new highway or land fill and within seconds see on a console the effects of such a plan on the entire socioeconomic and ecological structure of the region. This use of computers and technology in solving ecological problems is but one aspect covered in this film. Dr. Paul Ehrlich, author and director of Population Biology at Stanford University says population must be controlled: "Doubling the size of population much more than doubles the environmental impact."

The film also examines societies' future energy requirements and interviews plasma physicist John Holdren who, along with many others, hopes to develop ways of harnessing the thermo-nuclear reaction for the peaceful use of the hydrogen bomb.

II Cognitive Organizer

What's My Junk?

Procedure:

a) Each student brings in one throw-away item that is currently non-recyclable (a used plastic drinking straw, an empty cigarette pack, a plastic bleach bottle).
b) Divide the class into groups of four.
c) All the junk items are piled on a table and each group selects one item.
d) Each group brainstorms a new (and logical) use for the discarded item, records this use in writing and gives the description to the teacher.
e) Each group then serves as a panel (patterned after "What's My Line?") on a television show. The object is to guess the use of an item that has been submitted by one of the other groups within a "20-question yes/no response" limit. Five points are awarded to the challenging group for each "no" answer the panel receives.

This activity is from Teaching Tomorrow Today by Robert T. LaConte, Bantam Books, New York, N.Y., 1975.

III Terms

Predictive Ecology
computer graphics
GNP
nuclear fusion
biosphere
radioactive waste
ZPG
Ecosystem
John Holdren
Demography
energy efficiency
cowboy economy
population bomb
spaceman economy
simulation model
food chain
meteorology
ecolovan
maximum quality/minimum consumption
amenity
energy and heat
doomsdayer
uninhabitable
Paul Ehrlich

IV Key Questions

1 What is Ecology? What is the "Silent Bomb"?
2 What alternatives to the Silent Bomb can be identified as means of preserving the environment?
3 What are the political actions (group or individual) mentioned as avenues for saving the environment?
4 How can suggestions developed in "What's My Junk" help defuse the Silent Bomb?
5 How are the terms people, energy, ecosystem and environment interrelated?

V Objectives (The student will be able to . . . .)

1 List features of the environment which are monitored as the basis of predictive ecology.
2 Identify judgments which are value-free as opposed to value-laden in environmental decision making.
3 State the relationship between different cultures and their environmental impact on a per capita basis.
4 Identify characteristic behaviors of government, business and individuals operating in a "cowboy economy."
5 List ways in which individuals and societies can reduce their impact on the environment (have maximum quality and minimum consumption).

VI Project and Activity Questions

1 How many ways can students see computer graphics helping people predict an ecosystem of their liking?
2 Would computer information be value-free?
3 What steps would students suggest for developing energy for the increasing world population?
4 What are the consequences of population doubling every 15 to 35 years?
5 Are their conditions in the economy and availability of materials which restrict any reordering of use of energy resources?
6 What kind of government actions reflect the acceptance of the "cowboy economy"?
7 What impact would low-energy consumption have on lifestyles? Give advantages and disadvantages.
8 Have indications of finite resources been obvious in recent years?
9 Can the environment or ecosystem be save with individual effort alone?
10 What cultural differences exist around the world with regard to humans' relationships to the land and its resources?

VII Resources

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Joni Mitchell, "Yellow Taxi Cab" (music album)

John Denver, "Rocky Mountain High" (and other albums)

Games: Pollution, New York Times, N.Y.; Extinction, Sinaur Association, Stamford, Conn.; Economy vs. Ecology (teaching resources film) New York Times, N.Y.

Poetry of Walt Whitman: "Song of Myself"

VIII Citizen Action

1 Write a letter to Beloit College, Beloit, Wisconsin, and invite them to visit your school with the Ecolovan, then prepare a positive encounter with them.
2 Invite a computer analyst to visit your class and discuss the role of computers in predictive efforts (school, business, government).
3 Prepare a slide/tape presentation of local community action projects and include some of the apparent challenges of the future.
4 Structure a community plan that highlights energy conservation. Write it as a proposal for a community improvement award. Involve as many students as possible. Be specific.
5 Collect and discuss government publications which include local, state and/or national policies on the environment.
6 Put together a tape selection of contemporary music that focuses on current environmental problems and issues.

ARMAMENTS: The War Game

Subject Areas: Future Studies, Technology, Sociology

I Content Summary

By the late 1980s 25 nations will most likely have nuclear capability. This film discusses the increased sophistication of nuclear armaments as technological knowledge increases. Dr. Jerome B. Weisner, president of the Massachusetts Institute of Technology, argues against automatic "go-no go" computer systems. In the near future the U.S. plans to turn the responsibility of launching a massive retaliation strike over to computers. Dr. Weisner explains how such an automatic process can be accidentally triggered, creating a deadly and tragic possibility. Dr. Donald G. Brennan, former president of the Hudson Institute and a leading weapons development theorist, believes the future scope of warfare will involve the use of the moon, the sea and even the elements which make up the weather. He calls this "environmental warfare." The film also examines war protesting which, too, will become more sophisticated in the years to come.

II Cognitive Organizer

1 Buckminister Fuller says the earth has 28,000 pounds of explosives per person in the world. What would students do with their share? How do they feel about the priorities which cause such massive stockpiling of weaponry?
2 Have the students divide into two camps. One group will research the advantages and needs for the B-1 bomber and the other will research the disadvantages and waste of the B-1 bomber. Allow each group to present its point of view and demonstrate within the classroom with signs and rallies. Follow up the debate with an investigation of the community's attitudes and the representative position on the B-1 bomber project.

III Terms

national anthems
retalitory strike
remote control
Pentagon
anti-gravity device
environmental warfare
Strategic Arms Limitations Treaty Talks
"Ritualized Warfare"
"go-no go"
nuclear capability
arsenal of democracy
military-industrial complex
ozone layer gaps
Laser Probes
computer warfare
NORAD
political blackmail
arms race
peace protests

IV Key Questions

1 What would be the advantages and disadvantages of having a human-controlled missile system over a computer-controlled system?
2 What is the point of continual building of advanced military weaponry as described in the film?
3 What are the political, social and economic effects of the continual nuclear proliferation in the world today?
4 What is the future of the prevention of world wars using nuclear weapons?

V Objectives (The student will be able to . . . .)

1 Distinguish the arguments for a missile-controlled warfare and a human-controlled warfare system.
2 Predict the future arenas for warfare as described in the film and other resources.
3 Propose a scenario for the future of war as proposed by the experts in the film.
4 Compare the impact of the peace protests to the military-industrial complex lobby and to defend one point of view over the other.

VI Project and Activity Questions

1 Is the success of the current military build-up measured by "non-use"?
2 What economic factors may prevent the highly threatening level of the arms race?
3 Can a world body such as the United Nations take the responsibility for controlling the nuclear weapons production of all nations?

VI Project and Activity Questions (continued)

4 What factors prevent the leaders of the world from making decisions relative to nuclear capability and use?
5 What other methods have proved effective to reduce the threat of world war besides peace demonstrations?
6 How do people prepare for environmental warfare?
7 How has the protest music and musicians of the '60s and '70s influenced the anti-war protest movement?
8 If President Eisenhower was so respected and admired, why has his warning about the military-industrial complex been ignored? Or has it?
9 Is war a continuation of diplomacy?
10 Is the continuation of warfare in outer space a natural and realistic expectation?
11 Are civil defense systems realistic and necessary in the future?
12 Are computer system capabilities able to achieve "fail-safe" levels?
13 What effect would a reduced military budget have for America's future?
14 What are some of the issues discussed at the SALT talks?
15 Does nuclear proliferation increase the chances of nuclear warfare? Why?
16 Is national security more important than individual rights in America?

VII Resources

Ben H. Bag Kian, The Information Machines, Harper and Row, New York, 1971.

Kurt Baier and Nicholas Rencher, Values and the Future: The Impact of Technological Change on American Values, Free Press, New York, 1969.

Charles Beitz and Michael Washburn, Creating the Future.

Garrett Hardin, Exploring New Ethics for Survival: The Voyage of the Spaceship Beagle, The Viking Press, New York, 1972.

Eliot Janeway, The Economics of Crisis: War, Politics and the Dollar, Weybright, 1968.

Richard Kostelanetz (ed.), Beyond Left and Right: Radical Thought for Our Times, William Morrow, New York, 1968.

Harvey S. Perloff (ed.), The Future of the U. S. Government, George Braziller, New York, 1971.

Robert Theobald, An Alternative Future for America II, Swallow Press, Chicago, 1970.

Franklin Tugwell, Search for Alternatives: Public Policy and the Study of the Future, Winthrop, Cambridge, Massachusetts, 1973.

Adam Yarmolinsky, The Military Establishment, Harper and Row, New York, 1971.

VIII Citizen Action

1 Ask a local American Legion leader to present to the class the Legion's position related to its concern for a national defense.
2 Interview religious and political leaders in the community about priorities; include other items than national defense and analyze their positions.
3 Have students write their Member of Congress and request his/her position on spending for national defense.
4 Research the influence of the military-industrial complex on various statewide institutions which may be affected.
5 Prepare a slide-tape or musical presentation of the anti-war protestors.
6 Read Slaughterhouse Five by Kurt Vonnegut and relate his message to that of the film.
7 Ask a member of Nebraskan's for Peace to present its position on national defense to the class.

A DREAM OF EUROPE: Blueprint for Unity

Subject Areas: Future Studies, Political Science, Geography

I Content Summary

The possibility of Europe becoming a single unified state may seem preposterous to some, but it may be what lies ahead. According to Jean-Jacques Servan-Shreiber, a representative in the French Assembly, European unity is necessary for competition with America. America is able to monopolize almost everything, including culture, says Servan-Shreiber. Denise Rene, owner of art galleries in Paris, New York and Dusseldorf, discusses this claim.

Servan-Shreiber also suggests the possibility of six or seven world federations which would work together on projects, instead of having numerous weak little countries. He sees communications as the most important industry in the world today. Supersonic transport, he claims, is too expensive for small powers, and one system to be used by everyone should be created. Lambert Meyers, an executive of Air France, gives his views on transportation among countries.

II Cognitive Organizer

Role play a meeting or conference representing the seven major federations of the world. Discuss the development of a consistent, uniform monetary system. Have the students research the issue before the discussion. Debrief the meeting with questions on the difficulty and convenience of such a method of world federations.

III Terms

nationalism
citizen participation
democratization of culture
one world confederation
public funds
cultural monopoly
multinational corporations
imperialism
colonial revolt
world industry
federations
Concorde

IV Key Questions

1 In what ways do old European traditions clash with modern life?
2 What would be the advantages and disadvantages of a united Europe?
3 What steps are presently being taken to unify Europe?
4 What kinds of federation planning would assist the nations of the world in solving some of their major problems of expense?
5 What are some of the necessary traditions which must be changed before the "Dream of Europe" can be achieved? In Europe? In the U.S.A.?

V Objectives (The student will be able to . . . .)

1 Identify the influences that the United States has had to limit the power of Europe in the last 25 years.
2 Interpret the theory of Servan-Shreiber and relate it to the "Dream of Europe" for the future.
3 Predict the effect a united Europe may have on the United States in the future.
4 Explain the American policy toward Europe today and the possible policy necessary if the "Dream of Europe" were realized.

VI Project and Activity Questions

1 What is the influence of the United States on any country after a war?
2 What kinds of limits or cultural, economical or governmental hinderances would disrupt the dream of Europe's unification?
3 Why does the film suggest that imperialistic countries suffer most?
4 How do multinational corporations continue to influence countries?
5 How can Europe balance American influence?
6 Can American capitalism afford to have nations or federations determine who will build the major projects in the future? Why or why not?
7 Which countries in Europe would have the greatest barriers to entering a common political community?

VII Resources

Lester Brown, World Without Borders, Random House, New York, 1971.

The Conference Board, Challenge to Leadership: Managing in a Changing World, Free Press, New York, 1973.

Foreign Policy Association, Toward the Year 2018, Cowles Education Corporation, New York, 1968.

Herman Kahn (ed.), The Future of the Corporation, Mason and Lipscomb, New York, 1974.

Alvin Toffler, Eco-Spasm Report, Bantam Books, New York, 1974.

VIII Citizen Action

1 Write to the Foreign Policy Association for literature about the Common Market and plans to unify Europe.
2 Contact a foreign exchange student about the possibility of a united Europe and his/her reaction to the proposal.
3 Research the influence of multinational corporations on European countries and analyze their positions on a federation policy.
4 Interview a recent visitor to Europe and ask about any projects observed while there which seem to promote the united Europe concept.

ORGANIC FARMING: Can It Feed the Multitudes

Subject Areas: Future Studies, Ecology, Agriculture, Biology

I Content Summary

People are becoming far more conscious of what they eat and more curious about where it comes from. The move toward organic farming is gaining impetus. But the elimination of industrial processing conflicts with the goals of some big businesses, which naturally reach out to control every step between farm and kitchen table. Sen. Gaylord Nelson expresses his concern in this context about the effects of chemicals on food. Food scientist Dr. David Stanley maintains that scientifically produced substitutes and supplements are a valid aspect of today's diet, especially in view of costs. The film points out that, whatever the reasons, the average North American's diet is not as nutritious as it was 10 years ago.

II Cognitive Organizer

1 Bring in food boxes and packages of various types and have an identification quiz. How many raw agricultural products (natural foods) can be identified in the processed material?
2 Bring in two samples of fruit or vegetable, one from organic gardening and the other from fertilizer and pesticide controlled farms. Have a student eat them (or just a sample) and try to identify the differences between the samples (nutritional, aesthetics, taste).
3 Purchase a package of food wafers made from soybeans. Share them with the class and discuss student reactions to eating them.

III Terms

food corporation
agribusiness
pesticide
insecticide
herbicide
food science
soy protein
malnutrition
ecosystem
food processing
raw agricultural product
food
organic movement
health foods
ecological stress
meat analogue
DDT
inorganic fertilizer
middle class phenomenon
limiting factor
quality control
side affect
holistic
consumer protection group
protein deficiency

IV Key Questions

1 What is organic farming? How is it different from conventional farming in this area?
2 Why are current methods of food production considered to have a stressful effect on the land?
3 What are the risks of returning to organic farming?
4 What are the differences between raw agricultural products and food?

V Objectives (The student will be able to . . . .)

1 Identify factors which encourage small and large corporate farms to develop and operate programs using inorganic fertilizers and pesticides.
2 List the hazards of farming under current methods of using herbicides, pesticides and inorganic fertilizers.
3 State at least two serious questions which must be answered by citizens in making decisions about large food corporations.
4 Identify the proper role of active and concerned citizens in participating in the future of organic farming.

VI Project and Activity Questions

1 How many factors of food production are controlled by a food corporation?
2 What negative effects are clearly related to modern agricultural practices?
3 What positive side effects are clearly related to modern agricultural practices?
4 Identify the concerns of Sen. Gaylord Nelson as he discussed the corporate farm.

VI Project and Activity Questions (continued)

5 By what definition has the North American diet become less nutritious in the past 10 years?
6 Why is the organic movement considered a threat to corporate farm operation?
7 Discuss Dr. David Stanley's comment, "It takes about a generation for people to adapt to a change in food."
8 Itemize several daily nutrient packages (foods) which are far removed from the raw agricultural texture and composition.
9 Have students become more curious and conscious about what they eat in the past few years?
10 What role does local, state and national government play in regulating farming, both large and small? Does any particular legislation tend to favor one size over the other?
11 Is the consciousness of organic farming only a "middle class phenomenon"?

VII Resources

Stewart Brand, The Whole Earth Epilog, Penguin Books, New York, 1974.

Barry Commoner, The Closing Circle, Bantam Books, New York, 1972.

Van Rensselaer Potter, Bioethics, Prentice Hall, Englewood Cliffs, N.J., 1971.

The Delicate Balance: An Environmental Chemistry Module, IAC, Harper and Row, 1974.

Periodicals: *Environment, Organic Gardening, Environmental Action Bulletin, Nebraska Farmer.*

Write the U.S. Superintendent of Documents and ask for lists of free material on gardening and farming.

Local Agricultural Extension office.

soil conservation district

VIII Citizen Action

1 Survey local groceries and identify the food additives and processing which the "food" has been given. Select 10 commonly purchased items. After each class member has done this, discuss the relationship between food and raw agricultural products.
2 Contact the county extension agent and find out what efforts are being made by the county to encourage organic farming.
3 Consult a group of agricultural economists and have them identify the challenges of organic gardening in the local setting.
4 Contact your Member of Congress and senator and have them identify legislation which favors agribusiness. Invite them to the class for a discussion of pending legislation on the topic.
5 Research the structure and operation of the Food and Drug Administration. Write for information on comparative tests conducted on foods grown in various settings. Request a sample of their experimental goals of particular food and drug research.

SPACE: Life Out There

Subject Areas: Future Studies, Physics, Technology

I Content Summary

Questions about the nature of outer space in terms of the possibility of life on other planets may soon begin to be answered. Many scientists believe that there must be life somewhere in the solar system. As Carl Sagan, a Cornell university exobiologist points out, "We've looked at the earth from satellites with cameras, and at a kilometer resolution there is essentially no life to be seen."

The form that life might take intrigues all investigators, particularly in the light of what is known about the course of evolution here on earth. But Krafft Ehricke of North American Rockwell feels that there is only one optimum shape, and that after three billion years of evolution humans represent it reasonably well. The implication is that life elsewhere, after its own evolutionary stages, might look very much the same.

The film covers some of the new areas that successful exploration of the planets will open up -- astrofarming and mining, orbital hospitals, transportation of fertilized sheep and cow eggs to other planets in the wombs of rabbits.

II Cognitive Organizer

Small group or individual scenario writing. Students can take anything from the past or create anything new. They are on a galactic voyage to a place on the edge of the universe.

Group I
Describe your space station, facilities and what you are taking with you from the spaceship, "Earth" (i.e., plants, animals).

Group II
Describe or illustrate the types of government, economics, racial groups and other institutions which will be in effect on your new site.

Group III
Describe or illustrate the various types of communication systems for one-to-one and one-to-many relations. Also suggest other personal space needs available such as art, music, sculpture, painting.

Group IV
Draw and/or design on a large paper a "blueprint" of the surrounding universe, including suns, planets, moons, stars. Be sure to provide labels for "places."

Be prepared to present your projects to the others and explain your decisions if they have questions.

As a summary activity, decide what knowledge, skills and attitudes will be necessary before students go on this voyage.

III Terms

Black Hole
astro farming
space projects: Pioneer, Viking
immortality
ultimate limitations
time warp
weightlessness
chauvinism
light year
space engineering
infinity
biosphere
defining "g's"
kilometer
consumption
regular geometry
self-space

IV Key Questions

1 What is out there?
2 What is being done to investigate space?
3 What preparations are being made for space living? How far can it go?
4 What difficulties confront future space explorations? Can earth put a man on Mars?
5 How did the cognitive organizer activity apply to the information in the film?

V Objectives (The student will be able to . . . .)

1 Identify the "limits" of present definitions of life processes and objects.
2 Identify skills needed for future space explorations.
3 List present definitions of life conditions on earth.
4 Select appropriate things for survival in space.
5 Relate the use of the term "chauvinism" to other relationships.

VI Project and Activity Questions

1 What are the most significant events to be communicated to other "spaces"?
2 What types of careers will be available because of space exploration?
3 What kinds of psychological preparation will be necessary for humans to cope with space travel?
4 What kinds of "re-conditioning" activities or strategies could be used to prepare adventurers to deal with life on earth upon their return from space?
5 How can the quality and the intent of messages from extraterrestrial life be detected?
6 How can people deal with the unique human design and current biases about the human shape?
7 Would students prioritize space exploration as one of the top areas for national expenditure? Why or why not?
8 Are there any institutions or mores which may resist the concept of immortality?
9 What would be the advantage or disadvantage of Unispeak (a universal language) in this world as we pursue space? How would it be taught? Could or should it be an enforced language?
10 How will other forms view earthlings from radio messages identified in the film?
11 What would be some criticism of sending human fertilized "eggs" within the womb of one woman to populate a new planet?
12 What economic systems would be best to finance the pursuit of the space shuttle and space engineering?
13 What will cause earthlings to move more rapidly into space exploration?
14 What evidence can students provide that planets will work together in view of the situation in this world, when nations do not always work together?
15 Describe the reaction of this earth if a "Viking-like" object landed in the Nebraska area and began scooping up earth with no apparent signs of life on board.
16 What kinds of activities have scientists become involved in to determine "life" in this universe and beyond?
17 What may cause research of shapes to be misinterpreted?
18 What processes have evolved in the spaceship Earth to adapt to the atmosphere or has the atmosphere changed humans?
19 What kinds of earth communication objects should be included in space probes?

VII Resources

Issac Asimov, Is Anyone There? Doubleday and Co., Garden City, N.Y., 1967.

_____, Ray and Andrist, Looking Forward: Life in the Twentieth Century as Predicted in the Pages of American Magazines, 1895-1905, American Heritage Press, New York, 1971.

_____, Harrison (ed.), The Next Ninety Years, California Institute of Technology, Pasadena, Calif., 1967.

Arthur C. Clarke, Profiles of the Future, Bantam Books, New York, 1972.

_____, 2001: A Space Odyssey, New American Library, New York, 1972.

Mary Jane Dunstan and Patricia Garlan, Worlds in the Making, Prentice-Hall, Englewood Cliffs, N.J., 1970.

Aldous Huxley, Brave New World, Harper and Row, New York, 1932.

George Orwell, 1984, New American Library, New York, 1971.

Carl Sagan, The Cosmic Connection: An Extraterrestrial Perspective, Doubleday, Garden City, N.Y., 1973.

_____(ed.), Communication with Extraterrestrial Intelligence, Massachusetts Institute of Technology, Cambridge, Mass, 1973.

VII Resources (continued)

Alvin Toffler, Future Shock, Bantam Books, New York, 1971.

Films from the University of Nebraska-Lincoln: "Powers of 10" and "Cosmic Zoom."

VIII Citizen Action

1 Students can establish where they are by placing space exploration on a spending priority scale. Ask your member of Congress for information on priorities for government spending. These priorities could have been established by citizens in surveys (Charles Thone conducted one in 1975) or deduced from the national budget. Survey the class on similar priorities and compare to the 1975 citizen survey.

2 Determine the impact of the space projects on the standard of living today. What benefits have been derived from the costs? Make use of NASA research.